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ABSTRACT

This document consists of the 12 issues, an entire volume year, of the 1999-2000 EDUTECH Report. The newsletter's purpose is to alert faculty and administrators to issues in educational technology. Each issue contains two or three articles, a page of news briefs, a preview of the upcoming issue, and a question and answer column. Most issues also contain brief quotations on education technology-related topics. The following cover articles appeared between April 1999 and March 2000: "Software Standards Are a Good Thing, Right?"; "A Historian of Books, Lost and Found in Cyberspace" (Robert Darnton); "The Key to Great Service: Become the User"; "Student Self Service: More Than a Web Front End"; "Lessons Learned from Teaching with Technology" (Rhonda Taylor Richards); "Hot Issues 1999-2000" (Thomas Warger); "Taking a Ride on the IT Auto Train" (Howard Strauss); "Avoiding Problems in Implementing AIS Software" (Joel M. Smith); "Should We Customize the New AIS?" (Thomas Warger); "Just Say No" (Howard Strauss); "Web Portals: A Home Page Doth Not a Portal Make" (Howard Strauss); and "Always Planning." (AEF)

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The EDUTECH Report, 1999-2000

Volume 15, Numbers 1-12
April 1999-March 2000

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IR020540

April 1999

Volume 15
Number 1

THE EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

Software Standards are a Good Thing, Right?

The Story So Far: When IT Director Juan R. proposed setting a tighter standard for word processing on campus, he never imagined it would set off such an uproar. Of course, he expected a healthy debate to take place, but he thought it would soon become clear that the campus ship was already sailing briskly in that direction anyway. Back in a simpler day, there used to be a single unanimous and unquestioned choice of word processor at Division University: OldWordTool. Everyone had learned it when the first wave of OldWordTool-equipped personal computers made their dramatic appearance on faculty and staff desks over a decade ago. But since then the market winds had shifted, and now NewerProduct seemed to have gotten a foothold everywhere. Juan had proposed making the shift formal at a meeting of the IT Policy Committee, right after a group of his best support people had come into his office to tell him they were at the end of their collective rope. With so many new, inexperienced users joining the ranks, they were scrambling hard to help out everybody who got into trouble using complicated software. Couldn't they jettison some of the older programs on the support list, particularly OldWordTool? Juan laid out the case before the IT Policy Committee, and suggested that the ITPC start a process that would give everyone on campus a chance to be heard before this important decision was made. The next newsletter from the Computer Center carried a lead article about the proposed change. That's when the e-mail started.

Juan began to realize that he had tapped into an issue that went far beyond word processing, especially judging by the number of

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"Using technology in combination with a traditional pedagogy can never bring about a paradigm shift in education. Only a combination of state-of-the-art technology with a new pedagogy can lead to real and positive change in teachers' and students' roles, in classroom organization, in students' engagement in learning, and in student achievement."

Olga Agapova and Alex Ushakov
"How Technology Changes Education"
Technos
Spring 1999

NEWSBRIEFS

INSTITUTE FOR HIGHER ED IT PROFESSIONALS SPONSORED BY EDUCAUSE

The EDUCAUSE Institute is designed as a professional development program for those who manage some aspect of information technology and resources in higher education, whether within their department or for the entire institution. Participants come from a wide variety of backgrounds, from those who may be new to information resources management, through those who are ready to move up to the next level of management, to others who are interested in exploring the ways in which information resources can be better managed to support the overall institutional mission. Members of the EDUCAUSE Institute faculty are senior working professionals with years of experience managing information resources in higher education.

There are two Institute programs remaining for 1999, and both will be held this summer in Boulder, Colorado. Information on the Leadership and Management programs is available at www.educause.edu/inst/inst.html.

For more information about the EDUCAUSE Institute, or any EDUCAUSE event, e-mail info@educause.edu or call (303) 449-4430.

NEW ONLINE COLLEGE BOOKSTORE

The Higher Education Group of the Follett Corporation has launched a new Website for e-commerce. Through its exclusive relationship with almost 600 colleges and universities, the Website offers the opportunity to search for and purchase specific book and coursepack information by course. They also offer a large database of new and used textbook titles, searchable by author, title, ISBN, and category. Most material can be shipped within 24 hours of ordering. An additional feature is e-credits, which represent a percentage of each purchase that can be applied to the next purchase.

More information is available at www.efollett.com.

THIS YEAR'S "WIRED" RANKINGS

Instead of listing the top 100 "wired" colleges, the online version of this year's always-controversial ranking by *Yahoo! Internet Life* doubles its information by listing the top 200 institutions. (The print version still has only 100.) The ranking takes into account a variety of criteria, from student Web usage, network speed, and percentage of public computers made available around-the-clock to alumni access, the availability of multiple e-mail accounts for students, and Net resources available for the seeing- and hearing-impaired. Now in its third year, the survey has drawn both praise and criticism from colleges and universities, the criticism stemming mostly from a difference in the criteria from year-to-year and a reliance on self-reporting. A total of 571 institutions were surveyed this year.

The top five institutions this year are Case Western Reserve, MIT, Wake Forest, New Jersey Institute of Technology, and Rensselaer. For more information and to see the complete results, go to the Website at www.zdnet.com/yil/content/college/colleges99.html.

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Software Standards Are A Good Thing, Right?...

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e-mails that began with the words, "I can't believe...." Like this one from Lee, a science faculty member:

"I can't believe that you are thinking of dropping support for OldWordTool and making me learn NewerProduct. Do you have any idea how long it took me to learn how to get the charts to come out right in my lab manual?"

Juan reflected on how grateful Lee had been for guidance from the Computer Center when OldWordTool had first been introduced. She showed up for every workshop that the Center offered back then; some of them she attended two or three times. But it wasn't just the veteran faculty who were complaining. Juan got quite a bit of mail from young faculty, too. Michael, an economist, delivered his comments in the form of an OldWordTool attachment to his mail message. That's because his argument was sprinkled with elegant formulas that illustrated his points, and had to be formatted in OldWordTool.

"In my department at Highflight University," Michael began, and Juan knew he must be worked up, because Michael assiduously avoided invoking casually the name of the prestigious school where he had done his graduate work, "OldWordTool was considered an important tool of our trade. As you know, representing complex equations is an important means of scholarly communication among economists. I hear that you can do equations in NewerProduct just fine, but I really don't want to have to sit down and learn the intricacies again. Then there's my dissertation, written in OldWordTool, that I am in the process of reworking into articles. And what about my students, whom I have asked to learn enough OldWordTool to write their papers?"

But the reactions that had affected Juan most were some that came in an impromptu discussion of the topic that happened over lunch. He got talking to some people from the Development Office about the standards issue in the Commons, and several other faculty and administrators came over to join their table when they overhead what they were talking about. It turned into something like a congressional committee hearing, with him playing the role of the hapless bureaucrat who had come up on the Hill to defend an unpopular policy. As the discussion got more heated and personal, one person finally hissed, "You're just doing this to make things easier for you and your staff, aren't you? You don't want to have to learn all these different programs. What do we pay you for anyway?"

A few weeks later. Juan was sitting in his office, jotting notes for his presentation to the IT Policy Committee. By now, the issue had grown to immense proportions. The initial arguments that Juan had used in proposing the new standard were so convincing to the ITPC that its members felt they were defending the very principles of rational conduct of an IT policy. Juan found himself in a strange position. He was going to urge the ITPC to reverse its stand on the word processing policy. He had thought a lot about the issues in the past weeks, and he wanted to explain to the Committee what he had come to understand. His notes laid out these ideas:

(Un)Truisms About Software Standards

All word processing programs (and spreadsheets, e-mail clients, browsers, etc) are so much alike nowadays, that it is no big deal to switch from one to another. People who believe this probably have a secretary who does all their typing for them. There are a lot of reasons why switching between programs can be a significant effort. Take word processors. Anybody who does much writing of any kind probably uses features that quickly get beyond the standard point-and-click interface and are far from standard across brands. Examples include headers and footers, tables, styles, templates, and mail merge. Then too, most people come to rely on shortcuts and conveniences that may not exist in identical ways in all word processors. Besides the learning curve for standard features, there's the investment many people have made in setting up their own customized aids for doing their work. These may include collections of standard formats, typing abbreviations, custom word lists in a spelling checker, personal icons and menu bars, even complicated macros. While any single one of these differences may appear negligible by itself, when added together they can seem like the gently falling flakes that gradually pile up, eventually blocking the cabin door.

Every campus should have software standards. People agree with this in theory. And they expect solid standards for things like network connections and an integrated system of e-mail addresses. But when it comes to productivity software, like word processing programs, they may see things differently. People don't feel that their word processor is strictly an institutional tool, lent to them by management to do their specific task. Productivity software has become a part of many people's basic inventory of indispensable tools, part of how they get things done in their professional and personal lives. For many

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IT in Higher Education:

by G. Ph

GPC: What are the primary responsibilities of a university's chief executive officer in terms of IT?

CAC: Technophile or not, a college or university president must be in front of technology issues and concerns. Although the president does not singlehandedly create an institutional agenda, she is responsible for communicating the institution's mission as well as a clear and sensible vision for the future.

If the use of IT plays a key role in that vision, it becomes a presidential priority to inspire the campus community and to consistently reinforce why it is a fitting strategic direction for the institution.

In addition, the academic community has developed a larger vision where IT is concerned: We live in a knowledge-based society in which lifelong learning is critical for success, and technologies are highly effective tools for enhancing learning. Therefore, in speeches, publications, and events on and off campus, I frequently discuss the infusion of IT into the curriculum to increase academic options for students, and emphasize our leadership in applying IT to benefit the communities served by our campuses. I stress that our interest is not in the quantity of high-tech tools, but in the quality of learning that results.

When the decision has been made that technology is a big piece of the curriculum, faculty leadership is particularly critical. I believe that the president has a key role in convincing faculty that integrating high-tech tools into the curriculum for the purpose of improving learning will be supported through ongoing, professional development opportunities.

Of course, other institutions may take a very different approach, using IT primarily as a tool for improving the efficiency and effectiveness of administrative functions and for expediting access to information. In each case, the president must be able to communicate the role of technology and an institution-specific rationale for its use.

GPC: "Mission" and "vision" are concepts that do not require in-depth knowledge to convey. In terms of planning and decision-making, how much does a president really need to know about IT?

CAC: We must be educated about technology to the extent that we have a good sense of the technological infrastructure needed to actually implement the vision we espouse. To state the obvious, we must depend on highly knowledgeable advisers to guide discussions about hardware, software, and infrastructure, and to provide an understanding of what's needed to effectively address the human side of hardware. Having trusted advisers is important on all issues.

Presidents have to keep in mind that they're making decisions for the long term, and that investments in IT are ongoing investments. If, like Kent State, an institution has opted for a strategic direction in which IT will figure prominently, infrastructure upgrades and additions will be made annually and should be ongoing budget priorities.

GPC: Given fiscal realities, what's the best way to make these annual IT investments?

CAC: Conversations with my counterparts nationwide suggest two schools of thought here: Some institutions have implemented a fee earmarked for technology, believing that it sends the message that technology is an institutional priority. Other institutions believe that a technology fee has the opposite effect, making technology appear to be an afterthought as opposed to an integral part of university operations. There is no right approach, but the president must lead the discussions and make the decision about charging a technology fee.

Speaking of finances, it was not surprising that America's colleges and universities ranked financial planning third among IT concerns in this year's *Campus Computing Survey*. But I did find it surprising that more than 60 percent did not have an IT financial plan and that fewer than half had an IT strategic plan. I say this knowing that Kent State's enormous strides in the realm of IT could never have been accomplished without years of planning—including financial planning—earlier in the decade.

GPC: You have spoken about the need to address "people" issues relating to IT. What does that mean for a university?

CAC: In both academe and industry, most CEOs agree that person-

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A version of this article appeared originally in the March/April issue of Change *magazine. The interviewer is G. Philip Cartwright, the associate dean for information and educational technology at Northeastern Ohio Universities College of Medicine and a regular columnist with* Change. *The interviewee is his wife, Carol A. Cartwright, president of Kent State University. Previous columns are at www.contract.kent.edu/change.*

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nel issues are—and will continue to be—the most challenging aspect of implementing technology. On one end of the technology-user continuum are the highly skilled faculty and staff with high-level skills that cross industries easily. Higher education is scrambling to attract and retain these faculty and staff, despite the fact that few institutions can compete with corporate-sector salaries.

I believe the key to countering this disadvantage is to emphasize—and capitalize on—the quality of life that is associated with academic settings. Many employees tell me they chose to work at Kent State because living in a college town offered unique resources, from cultural programs to athletic events to an outstanding library. In addition, many employees factor in benefits such as tuition fee waivers when deciding to work at a college or university. Despite these advantages, we need to be competitive in terms of salary, and to be vigilant about retaining technologically proficient people.

On the other end of the skills spectrum are faculty and staff who have low technology skills and may feel frustrated and out-of-the-loop. Although it is imperative that adequate, ongoing, and nonthreatening training be provided to these employees, the technophobia of some employees may be difficult to conquer.

GPC: What should be done in cases in which a faculty or staff member balks at venturing into cyberspace, or clings to the myth that "you can't teach an old dog new tricks"?

CAC: Staff members who lack an adequate degree of technological literacy are easier to spot as a function of quality and quantity of work produced. Once a supervisor has identified that a problem exists, appropriate training can be provided. Faculty who are reluctant to adopt new technologies present a different issue. To address this at Kent State, we provide a wide range of ongoing, user-friendly, technology training options through our Faculty Professional Development Center.

In addition, office space in our Learning Technologies Center is reserved each semester for faculty members who want to develop distributed-learning courses, conduct research about learning technologies, or learn to use new media in their courses. And we launched a "Refresh" program that each year provides new computers to one-third of all tenure-track faculty.

GPC: What about faculty who feel their attempts to use new technologies are futile because their students will be more advanced no matter what they do?

CAC: I have heard that quite a bit! It's unfortunate, because this particular faculty fear is largely unfounded. In fact, we are finding that while most of today's students come to college having played countless computer games and having gained a basic knowledge of computing applications such as word processing and e-mail, this is far from the equivalent of high-level, high-tech literacy! The 1998 *Campus Computing Survey* found that more faculty use the Internet on a daily basis than their undergraduate students.

There is another fear that my colleagues and I hear frequently: that new learning technologies will cause departmental downsizing. It is the responsibility of the president to convince the academic community that this is not true in part because demand for higher education will grow as learning becomes a lifetime endeavor for most of us, and also because one of the primary goals for instituting new technologies is gaining time for high-priority activities by eliminating the most mundane duties.

GPC: Any parting advice for academic CEOs who must deal with IT issues?

CAC: I would note that dealing with IT is very similar to dealing with other complex issues and leadership challenges. The same leadership, communication, and consensus-building skills required for effectively managing other university operations are required. And the same proactive approach needed to manage change of any kind applies to managing the kind of changes—often radical ones—that will, inevitably, result from the introduction of new technologies.

I believe strongly that technology is a major issue for the entire executive team, not just for the president and the chief information officer. And I believe it is imperative that each member of the team understands the role of IT. Further, executive officers—particularly those at universities that have taken or want to take a leadership role in the use of technology—must each take responsibility for integrating IT into their realms of responsibility.

The most pressing technology-related challenge on many campuses is seeing to it that the tools we have worked so hard to acquire are actually being used—and used to their maximum capacity! ■

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Software Standards Are a Good Thing, Right?...

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people, a word processor is an intimate kind of software, more like a prosthetic hand than a work glove.

We need campus software standards so that people can work together more easily. This is the clearest and best-founded argument for software standards. It arises out of the right kind of thinking—weighing the mission of the institution and how best to achieve it. And it certainly seems to be self-evident that if everybody is using the same software it will be easier to collaborate on documents. The problem is that, if achieving this homogeneity requires unsettling lots of other solutions that are already in place, it may not be worth the cost. If it ain't broke, don't standardize it. Most of all, don't standardize it from the top down. One key to successfully navigating this dilemma is to let any kind of standard arise out of a specific need rather than a hypothetical one. Wait until there is a strongly and widely felt conviction among a group of users that there is a problem in the first place and that they are willing to pay the price to fix it. Wait until users come to the conclusion that a software standard is part of the solution (as opposed to better conversion tools, better trained help people, a study of individual workflows, micro solutions with smaller parts of the campus, or other approaches).

We need software standards because our support staff can't support all these different programs. Don't go there. Rhetorically, the most inflammatory effect of this argument is to raise the specter that we are running this institution for the sake of the support people, rather than the other way around.

But there is also a substantive problem with this argument. The math itself is hard to defend. Take all the OldWordTool users and send them down Skill Mountain to the beginner slopes where they are going to have to start learning NewerProduct. What is the training and support cost of getting them back up to the same comfort level that they enjoyed with OldWordTool? Will that support effort be significantly less than the cost of continuing support for OldWordTool would have been? Remember to add into the equation the need to continue re-skilling newcomers, such as incoming first-year students and new faculty, who will likely include some who are already skilled in something besides NewerProduct.

The overload on support staff is real enough and certainly serious. But maybe there are other ways to address it. Let's try proactive education of users, with the cooperation of supervisors (in the case of staff) and with the aid of faculty (in the case of students). Let's analyze where most problems arise and try to provide sample solutions for those kinds of projects. Let's provide ways for users to get help from sources other than the help desk, from on-line help, tapes, and manuals, or from user experts in their own areas.

Anybody who doesn't go along with the new standard must be a. lazy; b. incompetent; c: disloyal to our institution. Good way to alienate any friends you might somehow have managed to retain up to this point.

We can't afford to be buying multiple programs. In institutions not suffering acute budget meltdown, this financial argument would be seen as wildly disproportionate. Compare the cost of a single software license with its impact on personal productivity. This reason also suggests that institutional purchasing policies are playing the lead role in setting important IT policies. This seems to be taking a tactical approach to an issue that is soaked in strategic implications.

The gradual crumbling of these faux truths summarized for Juan what he had come to realize during the intense, sometimes painful, discussions with users over the past weeks. When he had first brought this issue to the ITPC, it was to ask them to take an apparently simple step, to adopt a campus standard for word processing software. Today, he would ask their cooperation in a more complex matter: developing a better model for how the Computer Center would support users.

As he thought about the impetus that had initiated the whole issue of standards, Juan began to see that the situation had gotten turned around. The pressing problem was the overload on the support people in the Computer Center, but he had jumped to a solution and tried to sell that solution to the community. Now he would take a step back and bring the original problem to the community, let them take part in identifying the solution. He would have the community discuss how to best make use of the time and skills of the people who worked in user support. What kinds of help did the users see as most important to getting their jobs done? How could this help best be provided? From there, Juan could develop a plan for letting his user support staff develop the skills they needed to meet those needs. The Computer Center would respond to the users' needs, rather than deciding what was good for everybody.

It might be that out of this community discussion would emerge the need to make some changes to cam-

pus software standards. If so, then these changes would be treated as major projects. If you considered the number of documents involved (people and offices possessed still-vital documents that dated back to the beginning of computer time), the amount of re-skilling and un-skilling that you might have to do, the deep impact that any forced change would have on people's daily lives, it become clear that a standards change could be a major, expensive project. In fact, such a project should probably be conducted like other major projects that Division University had gotten successfully underway, like its conversion to a new AIS or its preparation for Y2K. The success of those projects was based on identifying them as major efforts with serious import for the institution, putting a project manager and steering committee in place, and getting everyone on campus involved in both decision-making and working on the project. And it hadn't hurt that both projects had leadership from a highly placed champion.

But the more Juan reflected on these issues, the more he felt that the support crisis was quite distinct from the standards issue. One good result of all this was that Juan and his support staff had spent a lot of time recently reflecting on what they did for the user community and how they did it. They were coming to the conclusion that Division University was ready for a new support model. (There was a house rule in the Computer Center that anybody who used the word "paradigm" had to bring bagels for everybody the next morning.)

After all, the original style had developed when computers were new for everybody. Juan could remember helping a dean whose computer wouldn't start because he was using letters instead of ones and zeroes to enter the required system date. It was perfectly understandable that they had fallen into a paternalistic "We teach you—you learn from us" model. If they were responsible for everything their pupils did, then it was natural that they would make most of the rules. But if today's users were more used to taking responsibility for their own productivity, then maybe Juan and his staff could ... well, relax a bit. Maybe it would be possible for everyone on campus to agree on what it was reasonable to expect when they called the help desk or walked into the Computer Center. For the Computer Center's part, Juan knew that they still had some improvements to make in how they treated those who came to them for help.

Juan gathered up his notes and got ready to go to the Policy Committee meeting. As he passed through the support staff area on the way out, he noticed one of his most senior people looking up and down between her computer screen and a large binder that lay open on her desk. "Funny," Juan thought, "that looked like an OldWordTool manual." ■

"On-line education's greatest contribution to the academy won't be its efficiency or its accessibility. More important by far, if all goes well, it will provoke the crisis that we humanities professors have been waiting for—and which we desperately need. It will force us to decide whether we are going to continue our current evolution into mere conveyors of knowledge, or become seekers after something akin to wisdom. For if students come to us in the future cyber-dominated world, it will be not because we know things (the machines will know more), but for precisely those qualities that computers can never have: our ability to pose crucial questions, and also to venture answers to them."

Mark Edmundson
"Crashing the Academy"
The New York Times
April 4, 1999

In Future Issues

- *The many definitions of "distance education" and the implications for support*
- *Helping faculty make informed choices about classroom technology*
- *New system implementation: basic guidelines for success*

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EDUTECH RESPONDS

Q. Although we want standards on our campus, we still need to support two brands of everything for our users, just to give them a choice. In order to make this manageable, one of our approaches has been to limit support to "basic functions," so, for example, we say we support the first five chapters of the two word processing software manuals. But the users are still dissatisfied, and it's just increasing our frustration.

A. *Highly intelligent people like faculty and line-of-business managers think elaborately. They will not take kindly to being told that they can't use all the sophisticated features of a word processor to make their document elaborate, just because they quickly get over their heads and find the tool has gotten out of control and that they need technical support. An analogy: people go into "culture shock" when they go to live in a foreign country and find themselves infantilized by their limited command of the language. Maybe this is a natural extension of the notion of "computer fluency"—until you reach a decent level of fluency (a long time) it is expected that you will suffer from "computer culture shock," including depression, anger, woeful feelings of inadequacy, withdrawal, and vague resentment of the more fluent natives around you. Unless IT support people understand this, they will be upset by the "infantile" behavior of users and misread the emotional content of interchanges. The effort by the support people to "dumb down" the technology or limit the users options to match their perceived low levels of ability will only fan the flames.*

Q. It is very difficult on our campus to get "buy-in" (our euphemism for budget approval), especially from faculty, for new technology. What can we do to make the case?

A. *First, it is important to talk about technology not for its own sake, but as a means to an end. It is unfortunately true that it is too easy to find examples of technology run amok in some colleges, with large expenditures on hardware and software and little benefit to show for it. But it is just as easy—and increasingly so—to find examples of classroom technology that is making a difference in the ability to reach students on an individual level and administrative technology that is helping to make the college more efficient in its daily business operations. Focus on those benefits, and encourage the reluctant ones to look at the successes happening at other institutions.*

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A Historian of Books, Lost and Found in Cyberspace

by Robert Darnton, Princeton University

Like many academics, I am about to take the leap into cyberspace, and I'm scared. What will I find out there? What will I lose? Will I get lost myself?

As I approach the edge of the World-Wide Web, I am seized with affection for the media of yesteryear: the lecture and the book. Is it not remarkable that both are still going strong on our campuses, after centuries of use, despite the advent of the so-called Information Age?

Much as I admire my younger colleagues, who splice computerized music and images into their lectures, I find it best to talk right at my students, armed with nothing more than chalk and a blackboard. I'm a historian, and when I work in the archives, I fill index cards with notes and sort them into shoeboxes, while all around me the younger generation is tapping away on portable PCs. I love books, old-fashioned books, the older the better. As I see it, book culture reached its highest peak when Gutenberg modernized the codex; and the codex is superior in many ways to the computer. You can leaf through it, annotate it, take it to bed, and store it conveniently on a shelf. To read on a computer, you must squint at a poorly defined text on a cumbersome machine, and scroll through it, somewhat as the ancients did before the codex replaced the *volumen* in the fourth or fifth century.

Aside from their mechanical defects, computerized texts communicate a specious sense of mastery over time and space. They have links to the Web, and we think of the Web as infinite: We believe

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"Many faculty feel disoriented as teachers in the world of multimedia, web-based modules, TV links, live-boards, chat rooms and other affects of information technology. They have not been trained as coaches and managers and their institutions offer no significant development programs to help them learn.... In spite of the stress, the good news for students and teachers is that learning is more than information transfer, that automation can affect at most the information-transfer part of learning, and that the teacher is indispensable."

Peter J. Denning
"Teaching as a Social Process"
Educom Review
May/June 1999

NEWSBRIEFS

32ND ANNUAL ASCUE CONFERENCE

The Association of Small Computer Users in Education (ASCUE) has announced its 32nd Annual Conference, to be held June 13–17 in Myrtle Beach, South Carolina. The conference, whose purpose is to discuss the issues and challenges of technology in higher education seen from a small college perspective, will be held at Ocean Creek Plantation and Conference Center, close to local attractions and just a short walk from the beach. The theme for the conference is "IT trends in the 20th Century: How has it prepared us for the 21st?" with more than 40 paper submissions, panels, and roundtables covering the full range of technology in higher education. Pre-conference workshops will offer something of interest for everyone. In addition to excellent presentations and workshops, the conference will offer many opportunities for informal interaction. There will be birds-of-a-feather sessions and roundtables. The impromptu discussions in the lobby between sessions provide opportunities to share experiences with peers and maybe find the answer to a problem from someone who has already been there.

For more information, contact Dagrun Bennett, 1999 ASCUE Program Chair, Franklin College, (317) 738-8150; bennetd@franklincoll.edu or see the ASCUE Website at http://www.gettysburg.edu/ascue.

THE WIRED PROFESSOR

The Internet is rapidly becoming a necessary and natural part of the way we access information. *The Wired Professor*, a new book by Anne B. Keating with Joseph Hargitai, provides instructors with the necessary skills and intellectual framework for effectively working with and understanding this new tool and medium. Written for teachers with limited experience on the Internet, *The Wired Professor* is a collegial, hands-on guide on how to build and manage instruction-based Web pages and sites. In addition to practical tips, this book incorporates discussions on a variety of topics from the history of networks, publishing, and computers to hotly debated issues such as the pedagogical challenges posed by computer-aided instruction and distance learning. These discussions are geared to the non-computer savvy reader and written with an eye to allow instructors to maximize use of the Internet as a creative medium, a research resource of unparalleled dimension, and a community building tool.

The Wired Professor comes with a companion Web site that contains additional material, such as discussions on design and links to the resources discussed in the book. For more information, see www.nyupress.nyu.edu.

FCC LIKELY TO BOOST FUNDING FOR SCHOOL WIRING

Federal Communications Commission Chairman William Kennard has proposed a nearly $1-billion increase in funding for wiring the nation's schools and libraries for Internet access for next fiscal year. The $2.3-billion request would come from subsidies paid by local, long-distance, and wireless phone companies, starting in July. Experts predict a jump in the federal charges listed on consumer phone bills by as much as 30% to accommodate the increase.

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A Historian of Books, Lost and Found in Cyberspace

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that it connects us with everything, because everything is digitized, or soon will be. Given a powerful enough search engine, we imagine that we can have access to knowledge about anything on earth—and anything from the past. It is all out there on the Internet, waiting to be downloaded and printed out.

Such a notion of cyberspace has a strange resemblance to Saint Augustine's conception of the mind of God—omniscient and infinite, because His knowledge extends everywhere, even beyond time and space. Knowledge could also be infinite in a communication system where hyperlinks extended to everything—except, of course, that no such system could possibly exist. We produce far more information than we can digitize, and information isn't knowledge, anyhow. To know the past, we must dig up its remains and learn how to make sense of them. Most people are content to leave the spadework to historians and to make their own sense from the books those scholars write.

Unfortunately, books, too, have their limits. Any author knows how much must be eliminated before a text is ready for printing, and any researcher knows how little can be explored in the archives before the text is written. The manuscripts seem to stretch into infinity. You open a box, take out a folder, open the folder, take out a letter, read the letter, and wonder what connects it with all the other letters in all the other folders in all the other boxes in all the other archives. Researchers have never even read the overwhelming majority of documents such as letters. Most people never wrote letters. Most human beings have vanished into the past without leaving a trace of their existence.

To write history from the archives is to piece together what little we can grasp in as meaningful a picture as we can compose. But the result, in the form of a history book, can no more capture the infinity of experience than Augustine could comprehend the mind of God.

Given a powerful enough search engine, we imagine that we can have access to knowledge about anything on earth—and anything from the past. It is all out there on the Internet, waiting to be downloaded and printed out.

In short, the traditional media have no greater claim to mastery of the past than the electronic media. But there is something unreal about such speculation. The vision of data bases or manuscript boxes stretching out to infinity provides no comfort to historians chasing themes through archives. Whatever their epistemological angst, such scholars have concrete problems to solve. In my case, I have dozens of shoeboxes filled with index cards, crying out to be transformed into a book—too many, in fact, to squeeze into a single book, too many even to get under control. That is why I contemplate the leap: I want to write an electronic book.

Here is how my fantasy takes shape—and it's just a fantasy at this stage, for I don't believe any such work exists, at least not in the discipline of history. An "e-book," unlike a printed codex, can contain many layers, arranged in the shape of a pyramid. Readers can download the text and skim through the topmost layer, which would be written like an ordinary monograph. If it satisfies them, they can print it out, bind it (binding machines can now be attached to computers and printers), and study it at their convenience in the form of a custom-made paperback. If they come upon something that especially interests them, they can click down a layer to a supplementary essay or appendix. They can continue deeper through the book, through bodies of documents, bibliography, historiography, iconography, background music, everything I can provide to give the fullest possible understanding of my subject. In the end, readers will make the subject theirs, because they will find their own paths through it, reading horizontally, vertically, or diagonally, wherever the electronic links may lead.

I realize that describing an e-book is one thing, creating it another. But the temptation to try is difficult to resist for anyone who has had the typical archival experience that I've described. Once, I managed to read my way through all the boxes of an archive of the papers of a French-Swiss publisher, the Société typographique de Neuchâtel:

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Robert Darnton is a professor of history at Princeton University and president of the American Historical Association. This article appeared originally in The Chronicle of Higher Education and is reprinted with permission.

Progress Report F the Boole-A-Base

by Duane Stresser, Director

We at Euphoric State University were, well, euphoric at the visibility that Howard Strauss gave us in a recent issue of *The Edutech Report*. He reported on the tumultuous experiences we had as we rolled out Boole-A-Base as a standard desktop database product across campus. One of the benefits of Howard's analysis (I mean besides the flood of phone calls we got—you wouldn't believe how many BAB-Certified Developers there are in our part of the country) was to stimulate people on our campus to have a lot of discussion about the meaning of our ordeal. We thought people might be interested in hearing some of what we've come to understand through our conversations.

First, here is a summary of what Howard reported. (You can read the whole saga for yourself in the March 1999 issue of *The Edutech Report*.) A while back, ESU made the fateful decision to adopt Boole-A-Base as the standard desktop database software for the users on campus. The University put a lot of effort and money into the rollout, buying software for all the key people, hiring an authorized training company to bring everybody up to speed, and training our help desk folks to support it. But by the end of a year and a half, we seemed to have gotten in over our heads. BAB applications had proliferated across campus, users were unhappy with the quality of their self-developed systems, some groups had developed a heavy dependency on outside consultants or students who were going to graduate (or who already had), and, worst of all from the IT department's point of view, everyone seemed to be looking to IT to fix things.

Howard's conclusion was that our project was misguided because the IT department had abdicated its responsibility. IT had tried to turn users into advanced database designers and programmers, an attempt that was not going to succeed in most cases. Howard's recommendation was to make most departmental BAB work unnecessary by beefing up the central systems to better meet the users' needs. User-level tools would be used only to create simple systems to meet needs that were not covered by the central systems.

Here are some of the things that we think we now understand better as we've gotten together and discussed our BAB project.

IT didn't cause the problem by rolling out BAB. In fact, that cat had long been out of that bag. Lots of people already had plenty of tools and had been using them energetically for long time. The canonization of BAB just standardized the toolset and gave us something common to talk about. There were a large number of local systems already in use out there.

Central systems can't always be beefed up enough to make side systems unnecessary. Some things that were being handled by local BAB systems clearly should be in central systems (tracking purchases and budgets, major equipment inventory, student academic honors). But other concerns are decidedly local and it would be inefficient to incorporate them into the central systems (chemical storeroom inventory, the department head's list of student assistants never to be hired again). We did do a lot of soul-searching about our central systems and decided they needed some basic upgrading, not just the addition of a few fields. For instance, the way we had configured purchasing, it wasn't possible for departments to see the immediate effect of each expenditure on their budget balance, including wrinkles like partial shipments and standing orders. Also, our central budgeting system didn't allow the tracking of grants that began and ended on miscellaneous dates in different fiscal years. Flaws like these had been the motivation for many shadow systems within departments. Neither of those features will be easy to graft on to our existing system, so we have started to study whether we need to move to a more capable central system. That will take time, and even then some needs will remain unmet by the University's administrative system.

There are a variety of motives behind local systems. Another reason that simply spiffing up the central system won't make all the local systems disappear is the variety of motives that brought them into existence in the first place. For instance, some people created local repositories for their data because they didn't want others (perhaps including the boss) looking over their shoulder. Other offices had a concern about sensitive information (in areas like judicial proceedings, counseling, health, and family finances). They wanted to maintain control over who would see the information and even how long it would be maintained and how scrupulously it would be destroyed when the proper time came. Motives like these can be questioned, and access control can be offered in the central system and reinforced by good policies. But the fact re-

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mains that simply providing better facilities in the central system will have little effect until the other relevant issues are addressed as well.

have surfaced with elaborate side systems, they are going to have to address all the reasons why they were constructed in the first place.

en care of is, by definition, simple. Local needs could still be quite complex. It may even be someone's job to drive those needs forward.

Information Design for Users 101

This is a syllabus for a course aimed at users who have no intention of becoming programmers, but who realize that they must take hands-on responsibility for the information systems that are used in their areas.

Is this really necessary?
Before you start, make sure there isn't a less labor-intensive way to do what you want to do, such as adding information to the central systems or using a pre-packaged application to create your local system. This means knowing the tools that are available to you at various levels, including a good understanding of the central systems as implemented on your campus as well as their unfulfilled potential. You also need to know the capabilities of the central system's query and reporting tools.

What's in a record?
Okay, now that you've decided that the only reasonable alternative is to develop a local information system, what is it exactly that you need to track? What is the basic unit that will make up your records? Are you tracking a student or a class? A purchase order or an item? Relational databases let you answer the question multiple ways, but require much more skill to design. If you start to get in that deep, maybe it is time to rethink your project into simpler parts.

What's in a field?
The fields or data elements in an information system are the basic facts you are recording about each item in your system. Choose these with care. For instance, don't combine two notions into one data element. A classic example is using the social security number to identify people within the system, which seems like a good idea until it is necessary to correct an erroneous SSN. Set up separate flags for statuses, instead of using combined codes, even though they might seem easier to deal with. Otherwise you'll end up with dozens of monster combination codes like "Applied-and-got-aid-but-hasn't-accepted-yet."

Getting clean data into the system
Provide lists of valid values and put them on menus to make sure that information is entered consistently (U.S., USA, United States, etc). Give descriptive names to fields and codes so that operators won't run into ambiguity (does "accepted" mean we accepted them or they accepted us?). Write the documentation that will help people use the system correctly later on, even if you are the only anticipated user at the moment.

Pick the right data type
There are big differences between dates, numbers, and text. Most systems manage them differently. Make sure you know how they work in your system and choose the proper type for every field you create.

Link to the central system
Use standard keys and field names so you can download and upload data as needed and link back to the central system. Make your data types and formats consistent with the data in the central systems. If you are downloading information from one system to another, how will you assure that the two databases are kept in synch? If changes are made in both databases, how will they be reconciled?

Think like an auditor or a liability lawyer
That is, be paranoid. Make airtight plans for backing up the data, recovering in the case of a disaster, keeping unauthorized people from prying into or changing data. A significant amount of the time you spend on developing your system should be devoted to testing and verifying that it works right, that the data imported into it is correct, that the reports and summaries mean what you intended.

IT can't reduce the problem by restricting the use of BAB through legislation. If IT or anybody else wants to reduce the problems that

Local systems aren't necessarily simple. It is a mistake to assume that whatever is left over when the central functions are properly tak-

Users do need to become experts in information systems. Users should

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A Historian of Books, Lost and Found in Cyberspace...

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50,000 letters, the only complete collection from an 18th-century publishing house that has survived. I also read most of the documents in two of the largest collections at the French Bibliothèque Nationale. Taken together, those documents give an amazingly rich view of the world of books in the Enlightenment, but it took me 11 summers and three winters, over a period of 25 years, to read them.

Not that I suffered. Neuchâtel is a lovely city in good wine country on the edge of a lake behind a handsome range of mountains, and Paris is paradise. My research yielded several books and articles. But it left me with thousands of index cards that I have never used—and also with a feeling that I have not got across the full richness of my subject. The documents reveal not only what publishers printed, but how they decided what to publish; not only where the books went, but how they were handled by smugglers and wagoners at each stage along the transportation systems; not only who wrote them, but how the writers understood the enterprise of writing; not only what the king decreed to control the book trade, but how censors, police inspectors, bureaucrats, and spies collaborated in the work of repression. The material opens up new ways of thinking about the history of ideas, economics, politics, and society. It raises the possibility of realizing the ideal that the French call "*histoire totale*"—a total history of the book as a force in France on the eve of the revolution.

Easier said than done. In earlier efforts, I drafted a 100-page chapter about paper as an ingredient of books and left it in a drawer. I produced 75 pages on the book trade in the Loire Valley, and found it so loaded down with detail that no one would want to read it. I prepared a study of how a smuggler in Lyon opened a passage to the rich book country of the Rhone delta, another of how a bookseller in Besançon used an ingenious scheme to get around the *ordonnance* against piracy in 1777, another on the *entrepôt* trade in Versailles, another about the life of a literary agent in Paris, another on the adventures of a sales representative....

I could go on and on, listing one promising subject after another; but I could not fit them into a book. There was too much to tell. Whenever I started a chapter, I found myself pursuing so much detail that the stories ran away with me; I had to stop, undone by the fear of spending the rest of my life as the chronicler of the Société typographique de Neuchâtel—and of writing tomes that no one would read, even if someone might publish them.

The answer is an e-book. Not that electronic publication offers shortcuts, or that I intend to dump everything from my shoeboxes onto the Internet. Instead, I plan to work through the material in different ways, covering the most essential topics in the topmost narrative and including mini-monographs, along with selections from the richest runs of documents, in the lower layers. My readers will be able to help themselves to as much as they like in the portions they prefer and even to link my work with that of others in the burgeoning field of book history. An electronic book about the history of books in the Enlightenment! I can't resist. I'll take the leap.

Whatever becomes of my story, I hope it may be useful for others in similar situations. No two experiences are truly similar, I know. Few historians have enjoyed the luxury of working for decades in virgin archives. But everyone with a Ph.D. has experienced the difficulties of imposing readable form on intractable matter, and most know how hard it is to get a dissertation published as a book. The latter problem does not concern the unfathomable quality of the archives so much as the economics of publishing. Academic presses have cut back drastically on academic books, especially in fields where the monograph is deemed to be "endangered"—that is, virtually unsellable, whatever its intellectual merit.

The endangerment is so severe in some fields of history that the only escape seems to be a further leap into cyberspace. At least there is some hope of making a soft landing, because the American Historical Association has devised a three-year program, called Gutenberg-E, to promote the publication of high-quality electronic monographs. This is only a small-scale experiment. But if it succeeds, it may open a way for serious scholarship to expand on the Internet.

Whether or not I land safely on it, I am convinced that the Internet will transform the world of learning. The transformation has already begun. Our task, I think, is to take charge of it so that we maintain the highest standards from the past while developing new ones for the future. What better place to begin than with students now completing dissertations? Having spent their childhood with computers, they will know where they are going when they leap into cyberspace. I still stand on its edge, clutching my shoeboxes and whatever intellectual baggage that may keep me afloat, including some very ancient books, like Augustine's *Confessions* and *The City of God*. ■

Progress Report From Euphoric State...

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not become programmers. Amen. These days, it is not clear that even programmers should become programmers. We all need to move up, using higher-level tools that provide more leverage than traditional programming allows. But there is something that can and should be learned by everybody who has the responsibility for business processes: how to use information systems in support of those processes. It may not be the job of every user to become a database expert, but it certainly is the job of many professionals and managers to be continually devising more effective practices in the areas of their responsibility. A new bullet is emerging in lots of people's job descriptions: "Make use of modern information systems to support innovative practices in this department."

BAB may have been the wrong level of tool in many cases. If there are legitimate needs for local systems, they should be met wherever possible by higher-level applications, not low-level toolkits. If the Facilities Department needs to track maintenance records, and that capability is not included in the central system, then Facilities should purchase a maintenance records application, rather than constructing one with a toolkit like BAB. IT long ago got over the idea that they should build their central systems from scratch. What made us think that the users should build their own? Instead, we should give the users specific applications that can be tailored to their needs, like contact managers, special-purpose accounting packages, etc.

A great help desk is not enough. Granted that local systems are an inescapable reality, IT can choose what role to take in helping users develop them. Just providing "how-to" answers about using database tools is not enough. Why shouldn't IT become the source of advice and guidance on higher-level issues, like how to design a good system? This doesn't mean suddenly converting users into experienced programmers. But if there is going to be a course, formal or informal, in "Information Design for Users 101" (see sidebar), then why shouldn't IT folks be the professors? If it's because IT staffers aren't very good explainers, maybe it is time to remedy that. At the same time, IT can carry out its big responsibility to spread good knowledge about the central systems and what those systems can do.

Just what we need, more meetings. One of the best things that came out of the decision to promulgate BAB was the user group that emerged. Although at first it was mainly an arena for gripes, it eventually made us see how much we had in common. Even if everything doesn't fit neatly into one big central system, the distributed, local pieces have a lot of similarities with each other. So departments can help each other think through their needs. IT has started serving in a new role. Besides making major strides toward a more effective central system, the IT folks have helped a lot of departments sort out whether they need to develop their own specialized systems and how they might do that with the least exertion. The IT staff is getting out more these days, but they are also feeling a bit more relaxed. They have decided that their new role, even if it means providing a whole new line of consulting, is much more feasible than the impossible expectation of constructing systems that would meet everyone's detailed needs. ■

"There are short periods of time after the installation of new computing resources when faculty may appear superficially to be satisfied. However, you can count on the fact that this state of non-equilibrium will not last long. The next killer application is waiting just around the corner."

John McCredie
"Dogs Are More Fun Than Computers"
CAUSE/EFFECT
Volume 22, Number 1 1999

In Future Issues

- *Computer services management: ten basic principles*
- *Using IT to further the mission of the institution*
- *Even consolidated centers need to provide specialized support*

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EDUTECH RESPONDS

Q. We're going through a search for a new administrative system right now and it seems as if everyone we talk with at other schools is unhappy with their system in one way or another. Is there any system on the market today that would be a good choice for us or should we just wait until the systems get better than they are now?

A. *Making a good choice and being happy with the choice afterwards are two different issues. Yes, there are many good choices for you, but there is also an inherent level of difficulty surrounding the systems today that creates a large burden for any campus. That burden more often than not results in a lot of unhappiness, especially for those on campus who are or were directly involved in implementations. Defining—or not defining—what everyone's expectations are before the implementation begins is a big part of this, but the sheer size, pervasiveness, and power of administrative information systems today cause a lot of the turmoil. To a certain extent, it just can't be helped, and our experience suggests that all of the systems, more or less, have some amount of turmoil associated with them. As for waiting, it's not a strategy we can recommend, especially if your institution set out on this to begin with for reasons having to do with efficiency of operations, better information for decision-making, and providing higher levels of student service. A better strategy is to identify the system and the vendor that best meets your functional, technical, and support needs, look for the campuses that have had the least amount of pain in implementing that system and use them as models, and set realistic expectations for everyone involved.*

Q. We're about to begin our implementation of a new AIS, and want to know if there is anything in particular we should watch out for.

A. *The critical success factors all boil down to just a few. 1) Keeping after the vendor with eternal vigilance: status reports, contract fulfillment, meeting expectations; 2) Allocating a realistic level of resources and having a contingency fund; 3) Having support from the president in the idea that this project must be done with the same high quality level that the institution does everything else; 4) Having campus-wide participation in all phases; 5) Training, training, training, training; on-going, tailored, personalized, and just-in-time.*

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The Key to Great Service: Become the User

In a recent article in *The Wall Street Journal* about human resource policies at Amazon.com ("How Amazon.com Staffs a Juggernaut: It's Not About Resumes," 5/4/99), a senior vice president, David Risher, describes one of the interview techniques he uses to hire new employees for Amazon.com this way: "I might ask, 'How would you design a car for a deaf person?' Some people freeze when they get a question like that—others say they'd talk to people who are deaf. But the best candidates say they'd plug their ears and drive around in their cars to experience what it feels like to be a deaf driver. They put themselves right into the customer's mind and body, to find out what they need."

They put themselves right into the customer's mind and body, to find out what they need. This should be engraved on the entryway to every campus computer center in the world. What better way could there be to understand the user's needs, wants, and desires? What better way could there be to create products and services that meet those needs?

What do a lot of us do instead? In many cases, we just presume to know. Or we do actually ask, but then we presume that our judgement is better, more well informed, more experienced than that of our users, so we make decisions "on their behalf."

For example, we create a list of the things—hardware platforms, software packages, etc.—we can support, then communicate that list to the user community, expecting that most of the users will conform to the "standards" we have set. Whether because of a lack of resources, or a need to bring some conformity to an otherwise

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"The barriers for effective, one might say comfortable, virtual learning are coming down. Access to computing and to the Web will be virtually universal in another five years. But the basic economic model, that some will have more, will still be true. The good news is that basic computing power will be in the hands of all; the bad news is that it will be greater, more convenient, and more customizable for some than for others."

Judith V. Boettcher
"21st Century Teaching and Learning Patterns: What Will We See?"
Syllabus
June 1999

NEWSBRIEFS

NEW COMPUTING STANDARD AT OHIO UNIVERSITY

All dorm rooms for new students at Ohio University will be furnished with a computer and a printer starting in the fall, at a cost of about $1,000 per room. Twenty-three residence halls containing about 1,600 rooms will be equipped. The University is doing this in conjunction with a new requirement that every student has access to a computer. In making the announcement, Ohio University President Robert Glidden said, "We believe that student access to technology is so important to our learning environment on a residential campus that we have reordered our priorities for residence hall renovations to make this possible. We know that our students must be 'computer astute' for nearly any pursuit in life, and that requirement will only become more intense in the future. While technology is not a panacea for higher education, we do believe that it affords the opportunity to make learning more engaging and more effective. We want both our students and our faculty to have that advantage."

The new technology will be paid for with money allocated to residence hall improvements. For more, see http://www.ohiou.edu/about/new/001-989.html.

THE PEW LEARNING AND TECHNOLOGY PROGRAM

The Pew Learning and Technology Program is an $8.8-million, four-year effort to place the national discussion about the impact that new technologies are having on the nation's campuses in the context of student learning and ways to achieve this learning cost-effectively. The Program has three areas of work: 1) The Pew Grant Program in Course Redesign is a $6 million institutional grant program that will support efforts of colleges and universities to redesign their instructional approaches using technology to achieve cost savings as well as quality enhancements. 2) The Pew Symposia in Learning and Technology will conduct an ongoing national conversation about issues related to the intersection of learning and technology. 3) The Newsletter is an electronic newsletter that will be published quarterly beginning September 1999, highlighting ongoing examples of redesigned learning environments using technology and examine issues related to their development and implementation.

For further information and to subscribe to the newsletter, see the Website at http://www.center.rpi.edu.

STUDENTS RATE FACULTY BY THEIR WEB PAGES

Students who are technology-literate are increasingly expecting faculty to be familiar with and to use computer technology. A recent article in *The Chronicle of Higher Education* ("Students Say They Check Courses' Web Pages Before Deciding to Enroll" by Jeffrey R. Young, May 27, 1999) reports that some students believe that "the best professors are the ones who bother to make Web pages for their courses." And a growing number of students use the quality of course Web pages as a deciding factor when picking classes.

The article is at http://chronicle.com/free/99/05/99052701t.htm.

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The Key to Great Service: Become the User...

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chaotic environment, or even because some of us think the users aren't capable of making these decisions by themselves, we decide what is an appropriate mix of services and products for our users. And we have all kinds of reasonable justifications and rationales for doing this. What we don't have —much too often—is a happy, satisfied, and productive user community. This is especially true if we try to impose these standards after people have already decided what constitutes an effective and comfortable computing environment for them.

Is there a better way? Yes. *Become the user.* Look at the world as a user looks at the world. See the technology as a means to an end, not as an end in itself. Subject every project, every initiative, every system, every standard, and every data structure to a non-technical, user perspective. Go beyond just figuring out what educational and/or administrative purpose is to be served by imagining yourself actually responsible for the *outcome*, not just for the technology.

Become a faculty member. Have the desktop support people come in to your office sometime when you are not there and upgrade your computer. Try a new technology you have never used before in front of an audience. Call the Help Desk and tell them the Web interface isn't working for the class you're teaching right now. Call the academic services folks and request some help in writing new courseware. Figure out a new course load for one of your advisees who wants to change his major from chemistry to political science.

Become an administrator. Work in the Registrar's or the Bursar's office for a day during registration. Attend one of the computer center's training sessions on software you don't already know how to use—let's say Microsoft Access—and as soon as you return to your office, create a database of the students who work in the computer center. Create a new report from the institution's administrative information system showing what effect participation in student activities has on donation potential as an alumnus.

> *Look at the world as a user looks at the world. See the technology as a means to an end, not as an end in itself. Subject every project, every initiative, every system, every standard, and every data structure to a non-technical, user perspective.*

Become a current or prospective student. Register for a class using your institution's registration system. Look up your institution's Website and see how long it takes to find out the phone number of the Admissions Office. Create a dummy student record for yourself on the institution's student record system, then change your mailing address in the Registrar's Office and see how long it takes for the change to show up on your work-study paycheck.

Become any kind of a user. Call the Help Desk and see what kind of a response you get to a question on a feature in a software package the computer center says it officially supports. Stop using your favorite word processor and use one you have never used before; see how long it takes to do anything more sophisticated than creating a simple text document. Try the same experiment with your favorite Web browser, spreadsheet, presentation software, database manager.

Of course, just like the best movie critics and restaurant reviewers, you have to do all this anonymously. You shouldn't be able to get any special treatment just because the person providing the service knows who you are, so it may take some subterfuge and creativity. But the results in terms of knowledge and understanding—results you can put to work for you in creating a more responsive department—will definitely be worth it.

If there is one overriding issue for campus information technology departments, one issue that is above all others in importance, one issue that affects everything else that goes on in the department, it is clearly customer service. By committing to seeing things—the department's products and services, as well as its attitude—from the user's point of view, the chances of raising the quality of customer service are enormously high.

The Wall Street Journal article ends with a quote from Mr. Risher. In describing one of his best hires, he says that the candidate wasn't like "a lot of smart people I've met who think they alone have the right answers." Fill the computer center with folks who can generate those right answers, the right mix of services and products, as if they could read the users' minds—and be one yourself. ■

Distance-Learning Instructor

by Ellen Laird, Hudso

Two days ago, one of my colleagues met me on the quad. She lowered her book bag to the ground, looked directly into my eyes, and surrounded me with the gift of full concern. My emotional escort for a few minutes, she asked how I was doing. She was not about to settle for a stock response of "Fine. And you?"

She was the third of my kind colleagues to inquire this month. Others, outside my office door, ask each other, "Where has she been? Do you know if things are okay?"

I know what's on their minds. They wonder how I am dealing with my mother's argument with cancer, my father's surrender to Alzheimer's, my first-born's departure for college. But the new lines in my face have come from none of the above.

I am teaching a section of Composition I via the Internet this semester. More than a door separates me from my peers. In effect, I have become a cyberspace hostage. I exist in a place to which none of my colleagues has access. My captor is nameless, even shapeless, but I somehow identify with and am loyal to him/her/it. I recognize my fellow hostages, my students, by the thumbprint of their sentence structure, yet I have never seen most of their faces.

And I am lonely.

On the one hand, I have become accustomed to more one-on-one contact with students than I ever have had in traditional classes. Linda, for instance, has sent me 70 electronic messages—a class record—in addition to her bulging portfolio, double-the-required-length research paper, and numerous postings to our weekly discussion site. (Ah ... a green arrow next to my e-mailbox. Make that 71.)

On the other hand, I am alone—isolated in the Composition row in cyberspace. To date, only a handful of instructors on my community-college campus have traveled by mouse to the world in which I teach this class. A friend taught a literature class on the Internet last term, but she returned to real classrooms as I was leaving for virtual space to teach a different kind of course. Occasionally, I exchange stories or ideas with a colleague who is teaching through the Internet in a different department. I talk with another, who teaches at a different college. However temporarily, those two instructors, like me, reside in a world apart from the campuses we drive to each day.

> *Teaching over the Internet means the instructor will be nicked, frequently and unpredictably, by the razor-sharp cutting edge.*

But our respective courses are separate continents in that new world. As it should be, we have "rights" to our own classes only. That means we conduct our cyber-lives in an unusual form of professional isolation. Internet pedagogy forces challenges on us that are new, and many of which are discipline- or course-specific. The colleague down the hall has not yet struggled with what I need help on today. He or she has not trekked through the peculiar topography of Internet teaching.

As in traditional instruction, some of the stresses of distance teaching are clearly a function of the fit between the individual's temperament and the job. It probably takes a relaxed instructor to teach in this mode: someone who can lie back in a becalmed sailboat and enjoy the warmth of the sun on one's face instead of paddling steadily and calculating the distance to shore; someone who can handle the absence of constant company and face-to-face verbal sparring.

But several of the challenges and effects of distance teaching clearly relate to the nature of the task, not to the way it is performed. Besides forcing isolation, teaching asynchronously over the Internet means the instructor will be nicked, frequently and unpredictably, by the razor-sharp cutting edge.

First, the rapidity of change—in software, in material to cover, in campus systems, in possibility—is stressful. It is invigorating, yes, but exhausting in its promise and unrelenting in its beckoning. At the least, each time that distance enters my teaching life, I know that, armed with increased HTML vocabulary and never-enough JavaScript, I will be performing tasks at the end of the term that I had not even known about at the beginning.

At the same time, the more I seize possibilities for conducting my class electronically, the wider the gap

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Ellen Laird is an instructor of English at Hudson Valley Community College. This article first appeared in The Chronicle of Higher Education and is reprinted with permission.

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'atch Out for the Cutting Edge

ey Community College

grows between the student who is a rank beginner and me. The newcomer to cyberspace is akin to the student enrolled in a commuter college who has never learned how to drive. Both begin the term ready, perhaps, for the work; both have difficulty getting to it. But while the traditional student who is a non-driver would never ask me for driving lessons, the distance-learning student will require navigating instructions.

True, my campus has a strong distance-learning support system. But at 2 a.m., when the welder in my class is just home from his shift and cannot post his specificity exercise, whom does he alert electronically? Me, a known and, I hope, trusted part of his cyber-circle. As a non-techie, I am often desperate with the same frustration that students experience, so I will help them if I can. I will teach them to drive so that they can reach me.

But when the server is down—whether with advance notice or quite by surprise—I often find myself helpless. I need to make course adjustments and take immediate action, but I am unable to.

Here is the plot of my recurrent dream: I arrive at school early, lessons crafted, handouts copied and stacked on the desk. I stand before a locked office, then peer inside a locked classroom, in which students are seated with pens poised. The kindly locksmith says, in a note taped to the door, that he has never seen anything like these contraptions. He reassures me that he will open the locks, but he cannot say when. In my dream-turned-nightmare, I see instructors, unaware of my crisis, teaching face-to-face in their classrooms, overhead projectors illuminated.

After such server-induced lockouts —and this is no dream—students write lengthy e-mails of complaint to me. They have had a long time in which to stew and compose such missives; after all, they came to class, but I couldn't teach. Then I must answer each message, gently, reassuringly, recognizing that a change in the routine they have become dependent on is disorienting for them.

While understandable and inevitable, system interruptions clearly compromise the trust that is built, syllable by syllable, through exchanged text. Students write, "I feel alone out here. Are you there?"

While understandable and inevitable, system interruptions clearly compromise the trust that is built, syllable by syllable.

During such lockouts, the rational part of me knows to take comfort in our course record. We have every word posted to the discussion site, every sentence of every module both on-line and duplicated on tape by computer services in the event of a calamity. Nothing will be lost permanently. Why the angst?

Of course, access to "everything" becomes its own stressor. By the time the course is half over, our class transcript is nearly as large as the Starr report. It is clearly organized, but, with student input, each part is far bigger now than the 800 words I am told people can read comfortably at one on-line sitting.

The forward thrust of the distance class suffers when access to the system is compromised. But it will suffer anyway. The movement I can effect with ease in my traditional classes takes a convert's zeal with a marathoner's perseverance in a distance course. Unless an instructor denies access to previous course materials (thus denying students a uniquely powerful benefit of distance learning), students inevitably will return to assignments they had "finished" weeks before—with one more thought, one more version of the paper, one more this, one more that. Those new inputs infuse the course with a randomness difficult to combat. In effect, they draw class members back into the prepositional phrases of a past conversation, denying us the closure provided by measured accomplishment.

Although I am scheduled to be out of captivity next semester, I find myself ready, curiously enough, to take the steps sure to land me right back in cyber-custody next year. Although life "on the outside" beckons, I will volunteer to teach a distance course again.

Next time, however, prepared by my experience, I will not become Patty Hearst. Rather, I will be C.S. Lewis's Lucy, opening those wardrobe doors and feeling my way through the coats into my virtual Narnia. Like Lucy, I will resolve, this time, to keep one eye on the daylight in the room from which I set out, knowing that "I can always get back if anything goes wrong."

Out there, somewhere, another Linda will be waiting. ■

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Off-Campus Access Issues

by Steven W. Gilbert, The TLT Group

Both the CIO listserv run by EDUCAUSE (see www.educause.edu) and the AAHESGIT listserv run by Steve Gilbert, president of the TLT Group (see www.tltgroup.org), have had discussions recently on the issue of off-campus access to networked resources. It is obviously a hot topic on many campuses, with a variety of institutional aspects, including costs, availability, and support. Steve Gilbert put the following thoughts together about this topic, concluding with some difficult questions about responsibility, costs, and financial aid implications.

Most colleges are moving toward providing high-speed Internet connections accessible on campus to most students, faculty, and staff. Keeping up with the demand for high-speed on-campus Internet access seems less problematic than meeting the growing demand for off-campus access. (This is especially true as the national trend toward increasing numbers of part-time students continues.)

This is something all colleges are facing, but there are particular problems as well. For example, how can small colleges in rural areas provide good quality off-campus access to the Internet for non-residential students (and faculty and staff) who need to use the Internet from off-campus locations, such as their homes and workplaces, for course-related assignments?

Developing a pool of modems on the campus to enable people to dial in and connect to the college-provided Internet service via modem and personal computer is a challenge. Most colleges do not aspire to joining the Internet Service Provider (ISP) business because it is difficult to predict how rapidly the demand will grow, to find the financial resources, and to add staff to manage such operations. (In the last few years, many colleges and universities who were among the earliest to encourage active use of the Internet found themselves in the local ISP business before they realized what they were getting into. Most have reported that they didn't enjoy the subsequent experiences. Many are exiting from that business by encouraging their constituents to use local ISPs instead.) In some regions, some students, faculty, and staff must pay long distance rates for dialing into a college modem pool.

Most colleges do not aspire to joining the Internet Service Provider (ISP) business because it is difficult to predict how rapidly the demand for such services will grow, to find the financial resources, and to add staff to manage such operations.

In addition, there is the problem of overall usage levels for the campus phone system. At many small colleges there is now only one system for traditional voice telephony *and* dial-in/dial-out modem access. During evenings many residential students use that system to phone friends or family while others are dialing out for on-line services and those who live off-campus are trying to dial in to get to the campus-based Internet access. Some colleges report that the competing demands for the single phone system (trunk lines) are already creating unacceptable delays, and some describe situations where it can become impossible to make any kind of phone call from the campus for long periods of time.

Unfortunately, in some rural areas the alternatives are not attractive either. There may be little competition from existing ISPs for new business from the students, faculty, and staff. Prices for ISP usage can be higher than those now found in most large cities, and long distance calls may be required for connection.

Another problem is access to certain materials. If members of the college community are encouraged to use ISPs of their own choice for off-campus Internet access, how do they get access to databases or similar resources for which the college has purchased a site license? In most cases, access to these databases is configured to permit only those users identified as connecting from college-owned computers on campus. When users connect via an ISP, some other authentication of their identity and permission to use the service is needed.

Some institutions have made deals with cable ("cable TV") companies in which the college or university (or even the entire local community) gets fully wired with high speed cable connections at little or no cost to the college. In exchange, the institution makes a long-term commitment to encourage student purchase of TV and other services from that company. To what extent are new cable Internet access services

becoming a viable option for colleges and universities in general? What about small colleges in rural areas?

And what about the new satellite-based Internet access services? And other emerging wireless technologies?

Related questions

Several related questions arise concerning this issue.

When a college encourages or requires students to use an ISP for off-campus access to the Internet, does the student pay for the service directly to the ISP or does the college subsidize or pay for those costs? Do colleges negotiate better than individual commercial rates for ISP access for students (and faculty and staff)? Do all colleges have the opportunity to negotiate better rates?

When a college changes its method for providing off-campus access to faculty and staff from modem pools to individually acquired ISPs, does the college have an obligation to subsidize this new method, at least during a "transition" period to soften the financial blow for those for whom this was a free service previously?

If faculty require students to use on-line resources or tools, is the college responsible for enabling students to have *convenient* access to the Internet?

If all students are required to pay a technology usage fee, should students who live off-campus have the same quality of access to the Internet as residential students who live in "wired" dorms?

To what extent do and should financial aid policies and resources help students with the costs of on-campus technology usage fees and/or off-campus Internet access fees? How should "need" be calculated for these circumstances?

For more information on this topic as well as other topics of interest in higher education information technology, see the listserv archives. For information about Steve Gilbert's listserv and how to subscribe to it, see the Listserv / AAHESGIT section of www.tltgroup.org. Archives and subscription information for the CIO listserv are at the EDUCAUSE Website, www.educause.edu. ■

"Cyberspace is not the product of any formal theological system, yet for many of its champions its appeal is decidedly religious. Not being an overtly religious construct is in fact a crucial point in its favor; for in this scientific age, overt expressions of traditional forms of religion make many people uncomfortable. The 'spiritual' appeal of cyberspace lies in precisely this paradox: It is a repackaging of the old idea of Heaven but in a secular, technologically sanctioned format. The *perfect realm* awaits us, we are told, not behind the pearly gates, but beyond the network gateways, behind electronic doors labeled '.com,' '.net' and '.edu.' "

Margaret Wertheim
The Pearly Gates of Cyberspace: A History of Space from Dante to the Internet
Published by W. W. Norton
1999

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In Future Issues

- *Computer services management: ten basic principles*
- *Using IT to further the mission of the institution*
- *Even consolidated centers need to provide specialized support*

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EDUTECH RESPONDS

Q. We have just created the new position of chief information officer for our campus, responsible for all information technology and reporting directly to the president. What would you say are the most important qualities for us to look for in hiring a new person for our institution?

A. *First, and most important, the person should have a vision about the role of information technology in higher education and some clear ideas about where it can make the greatest contributions at your institution. Then: 1) excellent oral and written communications skills, including listening well, and an ability to communicate well with and at all levels of the institution; 2) the ability to form alliances and relationships with key campus constituents to make sure that all information technology efforts are in line with the institution's goals; 3) the ability to work collaboratively and effectively, both with one's staff and with one's peers; 4) the ability to make and stick to hard decisions that are in the institution's best interests, combined with the agility to stay flexible and open at all times; 5) the ability to manage resources in an environment where the demand is far greater than the supply; and, of course, 6) deep expertise in at least one aspect of the technology itself.*

Q. We have tremendous resistance to change on this campus. No matter what it is I'm trying to do, it seems all I ever encounter is negativeness. How can we ever do things better if we're not willing to change the way we do things now?

A. *We learn to be resistant to change by being hurt by it. Ranging from mild discomfort and annoyance to outright terror, the reactions of many of us, often based on experience, prevent us from embracing change in a way that makes it less of a threat and more of an exciting opportunity. There are three key ingredients in encouraging people to be more open to change. The first is that they should participate in the decision to change, at a very minimum by soliciting their input. The second is that they can envision the benefits of the change in a meaningful way, even if they will not benefit directly themselves. And the third is that they are prepared for it, including support, training, realistic expectations, and whatever else it takes to make them feel they can handle the change successfully.*

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Providing Information Technology Services to Higher Education

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Student Self Service: More Than a Web Front End

It's hard to think of any enterprise these days that still requires you to show up in person to conduct your business, unless there is something physical to be picked up or dropped off, unless you're eating a meal or getting fitted for glasses. For instance, people rarely go down to the office in person to straighten out the gas bill, arrange to have a new telephone line installed, or add a premium cable service. The only exceptions that come readily to mind are the motor vehicle bureau, the unemployment office, and off-track betting, all of which cultivate a faintly penal attitude and don't usually serve as models for higher education. The most up-to-date businesses don't even require you to talk to a representative by phone. They let you cancel a book you've ordered or place a buy order for stocks by using a Web browser.

In contrast, student administrative services at many schools work on an older model. If you want to remove a hold or get into a class that you need desperately, chances are you will go and wait your turn at the bursar's office or the registrar's office, perhaps zigzagging across campus to see your adviser or an instructor as well. Some schools have attempted to streamline students' Grail quests by setting up a combined office that provides "one stop shopping," but the assumption remains that the student will still have to appear in person to work his or her bureaucratic mojo.

Over time, an admirable goal would be to reduce the traffic as much as possible in the student administrative areas. This doesn't mean turning off the lights completely—we will still need people to keep the operations running smoothly. But the staff in these offices should be as surprised to have a student show up in person

continued on page 6

"People are always behind information; sometimes they hide from the public, but most often they are accessible. We need to teach our students to use their computers to have a dialogue with the people behind the ideas. The biggest difference between the computer and the television set should not be how close we're allowed to sit to the screen, but how much we are able to communicate with what is behind the images we see."

David Rothenberg
"Use the Web to Connect
With 'Ideas in Motion' "
Chronicle of Higher Education
July 16, 1999

NEWSBRIEFS

NEW SERVICES FROM THE ERIC CLEARINGHOUSE

The ERIC Clearinghouse on Higher Education (ERIC-HE) is offering two new services. "ERIC Higher Education News" is ERIC-HE's new quarterly electronic newsletter featuring items of interest to the higher education community. The first issue, which describes new reports available, bibliography sheets, workshops, and new government resources, is available on the Web at http://www.eriche.org/new/letter1.html.

ERIC is also making available a new search tutorial for ERIC database users. The ERIC database is a service of AskERIC, a "personalized Internet-based service providing education information to teachers, librarians, counselors, administrators, parents, and others throughout the United States and the world." The tutorial covers everything from Boolean operators to relevance ranking, and includes nine search exercises. The tutorial is on the Web at http://www.eriche.org/workshops/searching.html.

RESEARCH UNIVERSITIES TO CREATE DISTANCE LEARNING WEB SITE

Fourteen major North American universities will have a Web site to showcase some of the best distance learning by some of the best institutions. The Web site, R1.edu, will be operational in September and will be hosted by the University of Washington. R1.edu will provide a gateway to information about high-quality distance learning from established institutions, rather than a structured, degree-granting organization. Students will click onto the logos of the participating universities to identify study opportunities, register for courses, or enroll in certificate sequences.

All of the participating institutions belong to the Internet 2, which provides high-speed connections that will make innovative distance learning more interactive. The institutions on the Web site include: Massachusetts Institute of Technology, New York University, Pennsylvania State University, Stanford University, University of British Columbia, University of California at Berkeley Extension, University of California at Los Angeles Extension, University of Illinois, University of Minnesota (Twin Cities), University of North Carolina at Chapel Hill, University of Pennsylvania, University of Texas at Austin, University of Washington, and University of Wisconsin-Madison.

For more information about R1.edu contact David Szatmary, acting vice provost, University of Washington at dszatmar@ese.washington.edu or 206-685-6313.

NEW ONLINE JOURNAL AVAILABLE

The first two issues of @cademyonline, brought to you by University Access and the AACSB (the International Association for Management Education) are now available at www.academyonline.com. @cademyonline is a quarterly journal about the growing impact of technology on higher education and lifelong learning, and contains articles, interviews, and essays focused on online undergraduate and graduate business education.

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The Value of Collaboration Between IR and IT

Not exactly relaxing beach reading, this new book is nevertheless an important item for every IT manager's list of things to read this summer. *Information Technology in Higher Education: Assessing Its Impact and Planning for the Future* is a great way to get an overview of the new information and information technology issues now upon us, being brought forward by all the changes in higher education itself, and stemming mostly from the increasing interest in distance learning.

Information Technology in Higher Education: Assessing Its Impact and Planning for the Future
Edited by Richard N. Katz and Julia A. Rudy

Published by Jossey-Bass, in collaboration with EDUCAUSE

As Katz and Rudy state in the Editors' Notes, "The purpose of this volume is to stimulate a discussion among these parties [campus information technologists, institutional researchers, and campus leaders] on the nature of information systems, information services, and information itself in the transformational context in which we find ourselves."

What is that context? It is this: IT altering the very notions of time and place for all members of the college community, especially the students. As a result, lots of new conceptual frameworks are needed. New definitions are needed: what is a "census date" when enrollments are rolling? What is a "full-time equivalent" for distance education students and what relation does it have to "student-faculty ratio"? New roles are needed: instructional technologist, courseware developer, Website designer. New modes of instruction, new levels of student service, new ways of pricing an institution's offerings, and new demands for information. With the IT department expected to keep up with the technology that underlies all of this and with institutional researchers expected to report on and analyze the situation (not to mention comparing institutions to each other), it seems right to look for new opportunities to collaborate.

There are five chapters, each with different authors: "Integrating Information Technology Planning and Funding at the Institutional Level," which focuses on the need to base IT plans on a knowledge of who needs and who provides the IT services and on an understanding of the outcome of the service and how it relates to institutional goals and objectives; "Assessing the Academic Networked Environment," which talks about the efforts of the Coalition of Networked Information (CNI) in this area in coordinating the assessment work of seven institutions; "Modeling and Managing the Cost and Quality of Information Technology Services at Indiana University: A Case Study," which is a very interesting glimpse into the difficulties at large, complex institutions; "Assessing the Changing Impact of Technology on Teaching and Learning at Virginia Tech: A Case Study," which focuses on the demands brought about by public accountability in this computing-intensive institution; and "Institution-Wide Information Management and Its Assessment," which contains a very useful checklist of assessment factors for the ways in which institutions actually use information. All readers will find this concluding chapter especially useful, whether from an institution that is large or small, public or private. The chapter's author, Gerald Bernbom puts it, "Information has intrinsic value to an institution," so learning how best to assess the institution's management of information is a good investment indeed.

If there is a consistent theme in all of the chapters, it has to do with leadership and the ways in which that leadership makes a difference. Virtually nothing of any importance can be accomplished with lasting value, until and unless the institution's leadership is aware, and supportive, of the importance of information and information technology. This is not news to anyone who works in higher education IT, but it's good to have the message reinforced in a publication that might actually be read by some of those leaders. The landscape is changing; our presidents, vice presidents, and academic deans need to be on the forefront of that change. As Katz and Rudy state, "Finally, as in all things, leadership does matter.... [This is] a story about change. Change demands a clear vision and a campuswide commitment."

This book is the latest volume in the "New Directions for Institutional Research" series from Jossey-Bass Publishers. It was published in collaboration with the Association for Institutional Research and was sent out for free to all EDUCAUSE members through a sponsorship by SCT Education Systems. It is $23 otherwise and can be ordered at www.JosseyBass.com. ■

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i n t e r o f f i c e

M E M O R A N D U M

To: AIS Oversight Committee

From: Richard Harold, Dean of Enrollment Services

Subject: Project Management for the new AIS

Now that we have reached a decision on which administrative information system to acquire, it is obvious that the implementation process will begin very shortly. My interest is in making sure that we do every bit as good a job with the implementation as we did with this part of the decision-making. I'm very pleased that this was a collaborative and consensus-based decision for our institution and I know we made a good choice of system and vendor.

I understand that the Oversight Committee will be discussing project management at its next meeting. It seems to me that we have several options in this area, but only one of them is clearly the right one for us. The director of the administrative computing area, Barbara McFarlan, has all the right experience to do this job very well. As all users have, we have relied on her so much in the past for her direction and insight. Now, her knowledge of both technology and what goes on in our offices make her the right and obvious choice to lead this project. Clearly, Barbara's superior technology skills are exactly what is needed in this highly complex technology project.

I have heard that the committee will be considering the possibility of acquiring a project manager from an outside company that specializes in this type of work. This would seem to have some obvious advantages in terms of both getting the right technical skills and experience and in relieving our own folks of this burden. However, I would be really concerned that anyone coming in from the outside at this point would need a considerable amount of time learning about our institution well enough to be a leader in this important area. Our implementation will not be like anyone else's and it seems to me that knowledge of our own practices, policies, and procedures—such as that which Barbara clearly has—is the most important attribute for the project manager.

Most of the folks I have talked with agree with me on this. I'm sure you all will also.

If you would like to respond to this case study, just send e-mail to case-study@edutech-int.com. The best responses will be printed in an upcoming issue of the newsletter.

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ıgement for a New AIS

interoffice
MEMORANDUM

To: AIS Oversight Committee

From: Harry Richardson, Executive Director of Computer Services

Subject: Project Management for the new AIS

I know that you will be discussing who should be the project manager for the implementation of the new administrative information system at your next meeting, so I wanted to be sure to offer my views on this subject for the committee to consider.

There will be folks around the institution who will naturally gravitate to our department in looking for a project manager. But this is the wrong place to look. Of course, we have a major and very important role to play in the implementation process, but I feel strongly that we should not be leading it.

This project is not really about technology; it is about the institution itself. The technology in the system is there to support the functionality for the users; it has no other purpose. While it's true that many of us in Computer Services, especially Barbara McFarlan, have learned a lot over the years about what goes on in the administrative offices we work with, I get concerned that perhaps we have done too much. In some offices, the users themselves haven't taken enough responsibility in learning about and working with their own systems.

Pléase understand that we are not trying to shirk our responsibility here. We certainly intend to carry our share of the implementation burden. As I see it, our role in the implementation should be to make sure that the technology underlying the application system is strong, reliable, and robust and that all of the various parts of the system fit together smoothly. We will continue to work with each of the offices as we have been, giving the best advice we can on how technology can help everyone do their work. But we also want to be able to rely on the users—and on the upper administration—to determine the nature of the work itself. It's the work that should drive the technology, not the other way around.

A project leader should be chosen from the user community, someone who is a systems thinker and who can influence his or her colleagues to stay on track throughout the project. Most importantly, the project leader should be someone who can ensure, every step of the way, that the institution's goals and objectives are being met by the new system. My department will be there to help, to support, and to collaborate, but we shouldn't be there to lead. I'm sure the committee will agree.

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Student Self Service: More Than a Web Front End...

continued from page 1

to solve a problem as the staff in the power plant would be. They shouldn't expect many phone calls from desperate students either.

That is not because everything should be handled by machines. As much of business as possible should be handled by machines; more about that later. But the important thing is that administrative offices shouldn't come between the principals in the important transactions that matter in a student's life. For instance, if there is a need for special permission to get into a closed course that a student must take to graduate, then the principals are the student and an instructor, adviser, or dean, depending on the rules that the school has set up. The machine should allow the student to make the request and allow the proper official to make the decision, without other human intermediaries. Even if that decision is best handled in a face-to-face meeting between the principals, the adviser or instructor should be able to enter the decision directly and effectively into the system, rather than sending the student down to the registrar's office with a slip of paper authorizing the office to put the decision into force at a later time. Then the student should not have to wait for the decision to work its way through somebody's in-basket before going on with the next step.

One of the objections that is raised against this approach is the Principle of the Candy Jar. In many offices of registrars, bursars, and financial aid counselors, there stands a jar dispensing M&Ms or Tootsie Rolls to students. This will often be pointed to with pride. "The students like to come here. They even drop in to see us and grab some candy when they don't have a problem. In our college, human contact is highly valued. Our office is an important part of the college's relationship with the students." The principle is a good one, but it is in the wrong place.

Primary services are ones that people value for their own sake, such as getting to sit in a room with a gifted faculty member and learning about an interesting topic. Secondary services are ones that only fulfill a need that the service provider created in the first place. For instance, the desk labeled "Special Services" at the airport provides a secondary service. Having canceled your flight and thereby invalidated the ticket you hold in your hand, the airline provides you with the opportunity at the Special Services counter to get new reservations that will get you to the same destination, only later. No amount of niceness on the part of the counter agents can make this into a primary service.

> *"Workflow" has become a favorite buzzword with vendors of administrative information systems. Perhaps that is because it is one of those self-congratulatory names: What could sound harder than "work"? What could sound easier than "flow"?*

There has recently been a trend toward something called "self service" on many campuses and among vendors of student information system (SIS) application software. In the light of what we've just been discussing, this is more properly called "direct service." In the direct service environment, you don't have to wait in line at a counter to have somebody else tell you what the computer says about you. On the other hand, you are not left entirely on your own in fixing the problem, as the term "self service" might imply. The student and the person representing the college, if one is required, can each perform their sides of the transaction directly on the computer. The machine lets the student iron out 99% of the obstacles without needing another person to intervene. When you do need human help, it is provided directly by the person who has the authority to resolve your issue, and the machine aids your contacting that person.

To achieve this level of direct services, you need more than just Web pages that act as a front end to a traditional SIS application. Just adding Web pages that let students add and drop courses or view their accounts is not enough. Implementing the direct services environment for students requires at least the following conditions:

As many of the rules as possible should be in the computer, instead of just being carried around in people's heads. If the computer is capable of handling only basic, normal conditions, then students will be quickly shunted to a counter to handle the exceptions. Those exceptions quickly turn into bottlenecks. This may require that some rules be codified (perhaps for the first time) and may even suggest that some rules be simplified or eliminated.

For example, take a look at what happens in your institution when the enrollment limit on a class is

reached. Some limits may be rigid (that course has a lab, and there are only 25 student stations). Some may have quite specific rules for admitting students beyond the limit (senior majors can always get in). Others may be entirely subjective (that instructor likes to make one-by-one decisions herself after the limit is reached). Does the system treat all of these alike, simply flashing the message "section closed"? Or does the system apply more complex rules where they have been established, and take advantage of the information the system already has about the student (checking the student's major before applying the enrollment limit in the first place, allowing the student into the course if majors have automatic override of limits)? And does the system share further information with the student about her alternatives and next steps ("this section has a strict enrollment limit based on the class facility," "the waiting list is already closed," "limited additional seats may be available with instructor's authorization")? And if contact with a person is advisable, does the system encourage and facilitate that contact? (See the discussion below of work flow.)

The rules should be easy to put into the system and easy to change. It is part of the basic nature of an institution of higher education to continually refine rules and add new ones. This should not require recourse to the programming department, or else the rules will just be implemented in somebody's head instead of in the machine, and we will be back to where we started. The system for establishing machine rules should be flexible, so that each local authority (department, major, college) can have its own peculiarities and maintain the rules itself. The system must be based on effective dates, so that rules can cover different periods of time and the system can keep track of which rules apply to which transactions.

In short, rules should be in the system as data, not as programming code. As with other kinds of data, the data owner should be the data maintainer.

The system must support true workflow. "Workflow" has become a favorite buzzword with vendors of administrative information systems. Perhaps that is because it is one of those self-congratulatory names: What could sound harder than "work"? What could sound easier than "flow"? Whatever its marketing purposes, the term "workflow" has a solid meaning that is relevant to direct service for students. Workflow allows, among other things, that rules be set up to route requests for permission and authorization automatically to the right person. Then it allows the permissions to be sent back through the system and to take effect automatically.

A real workflow system includes a notification tree that is represented in the system as data and can be changed easily, as well as a way to track where work has stalled in the flow and reroute it after a waiting period has passed. For the direct service model, it is key that even the student be able to track a task through the workflow system. Otherwise, students will be frustrated about requests disappearing into a black hole. Few systems have rich workflow environments implemented today, although several vendors are working hard at improving the features they call by that name. It is also important to recognize that administering a workflow system is a job in itself, and at some universities is actually assigned to a whole new office.

In the cartoon strip "For Better or For Worse," Anthony recently signed on to help out his friend Gordy at Gordy's gas station. Comically, Anthony gets involved in upgrading the files on Gordy's ancient computer with a new database, while Gordy ends up still pumping the gas. I'm not sure this was Lynn Johnston's point, but didn't Anthony make a mistake that we in higher education can ponder? Anthony quite naturally gravitated toward the "back room" at the gas station to make his contribution. Maybe he should have paid more attention to the customer service side of the business, and encouraged Gordy to put in those new gas pumps where you can use your credit card. Then Gordy wouldn't be pumping so much gas either, and he might find that's the way the customers prefer it. ■

In Future Issues

- *Why the central computer services department needs some competition*
- *Applying Peter Senge's principles to the IT department*
- *More ideas for coping with the support service crisis*

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Q. We have made a lot of changes at our institution in the last few years, both in technology and in administrative processes, but one of the hardest nuts to crack has been in the area of data access. Our systems are highly integrated and quite user-friendly, yet we are still into data "ownership" with each office deciding who gets to see, and change, which data elements. There are many folks who feel that this attitude is hurting the institution, especially in areas like student service, but it persists nevertheless.

A. *It is not surprising that this is a difficult area; it is one that requires perhaps the greatest amount of behavioral change for everyone involved. For a registrar, for example, who takes his or her FERPA responsibilities seriously, or for a financial aid administrator who is concerned that sensitive data could fall into the wrong hands, it is quite understandable that there would be some reluctance to embrace a more open approach to data access. But, for the institution's sake, it is important for everyone to move from the notion of ownership to one of custodianship. It should be an institutional (usually through a committee), not a departmental, decision about who should access what. Of course, the systems you have need to support whatever decisions you come up with; they should not be a constraint for any reason, whether that is lack of flexibility or appropriate security, or an interface that makes the correct interpretation of data (by faculty, for instance) more difficult than it should be. Tales of hackers may be contributing to the problem as well, but most institutions today find the level of security, though not perfect, acceptable (and getting better).*

Q. What can we say to faculty who are reluctant to get involved with technology when they say that there is no proof yet that technology contributes to better learning?

A. *The lack of proof may or may not be true, depending on how you define "better learning," but in any case, it's really just a red herring. Many times this hesitation to get involved comes from other reasons. The goal on every campus should be to make sure that all faculty members are in a position to make informed choices about their use of technology. If a faculty member is well aware of the options, is not put off because of lack of service or support, and is open to trying new techniques and methods, and then he or she chooses not to use classroom technology, so be it.*

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Lessons Learned From Teaching With Technology

Rhonda Taylor Richards, Winthrop University

When I arrived at Winthrop University from a private liberal arts college in 1995, I brought along ample confidence and security in my teaching ability as well as an intense interest in technology and its role in education. When offered an opportunity to direct the new Instructional Technology Center (ITC) and teach classes that modeled the use of technology, I felt both ready and anxious. I knew that I had much to learn and that my expertise would develop beyond the simple knowledge of software and hardware. I would be taking many risks, of this I was certain, and because the impact of technology would be manifested through my teaching, I was a bit tentative in my excitement.

During the past four years, I have learned valuable lessons about infusing technology into the curriculum and have acquired a new understanding of college-level teaching. As I reflected on my own experiences with technology in my teaching, I reviewed the formal and informal student evaluations, chair evaluations, and peer evaluations that supplied feedback on the use of technology and teaching in my classes. From the detailed analysis of this diverse feedback and information, I offer the following thoughts, lessons, and recommendations about the appropriate role of technology in higher education, and particularly teacher education programs.

Lesson One:
You can have too much technology in your class

During a recent semester I tried to incorporate technology at every turn. Over the course of 15 weeks, I used four PowerPoint

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"Improving dramatically each season, the Web offers instant access to information that previously we would have needed days or weeks to amass. That is truly remarkable. For years, we'd heard that facts would soon be at our fingertips—and now they are. We can get information faster, but are we any better trained to sift through it and use it to produce a creative, balanced, and informed point of view? In bars and cartoons, on talk shows, and in op-ed pieces, a lot of people are saying the same thing: 'If this is the age of information, how come no one seems to know anything?' "

David Rothenberg
"Use the Web to Connect With 'Ideas in Motion' "
Chronicle of Higher Education
July 16, 1999

NEWSBRIEFS

COPYRIGHT OFFICE RELEASES REPORT ON DIGITAL DISTANCE EDUCATION

The Copyright Office has released a report on "Copyright and Digital Distance Education." In the Digital Millennium Copyright Act of 1998, Congress charged the Copyright Office with responsibility to study how to promote distance education through digital technologies, and report back with recommendations within six months. The report has been issued after an intensive process of identifying stakeholders, holding public hearings, soliciting comments, conducting research, and consulting with experts in various fields. The report gives an overview of the nature of distance education today; describes current licensing practices in digital distance education, including problems and future trends; describes the status of the technologies available or in development relating to the delivery of distance education courses and the protection of their content; and discusses prior initiatives to address the copyright issues involved. It also provides an analysis of how current copyright law applies to digital distance education, as well as an assessment of whether the law should be changed to accommodate new technologies, and if so, how.

The report is available on the Website of the U.S. Copyright Office at http://www.loc.gov/copyright/disted.

REPORT AVAILABLE ON IT SPENDING AT STATE UNIVERSITIES

A report available from the National Association of State Universities and Land-Grant Colleges (NASULGC), *NASULGC Institutions Connecting with the Future: How do they do IT? How do they pay for IT?*, offers survey findings on institutional IT initiatives, priorities, and sources of funding. It also provides a short summary of each respondent's information-technology initiatives. According to the report, computer upgrades for students and faculty are the top IT spending priority; it also states that most schools surveyed allocate an average of five percent of their total annual budget to IT. Seventy-one percent of the schools use student fees of some kind to help offset IT spending.

Forty-eight percent of the association's 203 member schools participated in the survey to determine uses and sources of IT funding. The report is available at http://www.nasulgc.org/WhatsNew.htm.

JONES INTERNATIONAL NOW OFFERING FINANCIAL AID

Jones International University (JIU) is the nation's first completely online university to receive accreditation from a nationally recognized regional accreditation agency, North Central Association of Schools and Colleges. Now students who are interested in attending JIU can use the same technology to borrow the money they will need for tuition and related college expenses. JIU has announced that it has partnered with SLM Financial Corp., a subsidiary of Sallie Mae, to offer low-cost Professional Education Loans through the University's cyber campus. For more information, see their Website at http://www.jonesinternational.edu.

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lessons, two laserdisc lessons, two Internet sessions, not to mention traditional videos and overheads. In addition, I required students to incorporate technology into their final presentations. As I reflected on my evaluations from my students, one comment rang out: "Too much technology can be boring." I suddenly realized that though I assumed that all the whistles and bells, colorful slides, and animated visuals would automatically bring the material to life, I was wrong.

Many of our students have been reared in a visual world that encourages passivity, and much of what may be unique or exciting to the instructor is simply commonplace or even boring to contemporary students who have spent untold hours viewing television or engaging in computer games. In other words, points flying across the slide from left to right and checkerboard transitions from idea to idea do not ensure clarity and understanding on the part of students and are not guaranteed lesson enhancements. I learned that I should use technology-aided presentations judiciously and selectively and not succumb to the glamour appeal of a glitzy delivery. In many instances, more can be less from the students' perspective.

Lesson Two: Technology can intimidate if students have not been uniformly prepared prior to its use

Students come to education classes with various levels of preparation. A survey administered to Winthrop students in their first education course revealed that more than half rated their computer skills as average. Not surprisingly, this variance in skills can be an advantage for some students and a disadvantage for others.

At that time, the teacher education program was without a required technology course, thus making assignments involving technology difficult for students and instructors. In the spring of 1995, I required students to complete an electronic portfolio that would archive important information from their cases of at-risk students. The process involved entering information into text fields and some minor format adjustments, both of which I felt could be managed by the majority of students. What I soon discovered was that the students with previous experience with computers found that activity useful and relevant to their training as future teachers. This response, logically, came as no surprise. Just as it came as no surprise that those with less preparation were overwhelmed by the activity, primarily due to their lack of keyboarding and computer skills. What *did* come as a surprise was that, unfortunately, the non-traditional students who had been out of school for a period of time were among the most technologically disadvantaged. Often these are the best students in class and, because they were adversely affected by this activity, they were the ones who had the potential to be totally turned off by technology.

Many of our students have been reared in a visual world that encourages passivity, and much of what may be unique or exciting to the instructor is simply commonplace or even boring to contemporary students who have spent untold hours viewing television or engaging in computer games.

A valuable lesson had been learned: After this dilemma, tutorial sessions were offered through the ITC for students who needed additional preparation for technology-based activities.

Lesson Three: Students can be unforgiving if (when) technology fails

Always be prepared for technology not working... a warning that has serious consequences if not heeded. In other words, have handouts, overheads, and your own teaching skills as substitutes when planned technology lessons fail.

This is perhaps the hardest lesson I have learned, and it occurred at least twice in the past four years. The first instance occurred when, much to my delight, and after a long anticipated arrival, the new LCD video projector was delivered to the ITC. Rather than check out the university LCD panel—a process I knew to be laborious—and anxious to use this in my class before the semester ended (only two classes remained), I hooked it to my Powerbook, looked through the in-

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Rhonda Taylor Richards is the associate dean in the College of Education at Winthrop University.
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Distance Education: a Mea

by Dennis A. Trin

The University of Phoenix and other purveyors of distance learning have come under harsh criticism from a variety of educational quarters. Courses taken online have been excoriated as impersonal, superficial, misdirected, even potentially depressing and dehumanizing. A 1999 report on distance education from the National Education Association, for example, says online courses may disrupt the interaction that takes place between faculty and students that creates a "learning community."

Unfortunately, much of the criticism misrepresents or ignores the realities of American higher education today. Let's look at the paths of three actual college students who were part of a 1999 survey conducted by the American Association for History and Computing. (Their names here, however, are fictional.)

Marianne Suarez, a freshman last year at the University of Cincinnati, was considering a major in history and education. To test the waters, she took a Western-civilization survey course. Twice a week she attended class with 250 other students in a cavernous room on the first floor of McMicken Hall. Visitors to the campus might recognize it as the classroom used in the Jodie Foster film *Little Man Tate*.

For Suarez, the classroom was the setting for a series of staged performances. With the large enrollment, the instructor could do little more than deliver well-prepared lectures and hope that the students would be inspired to pursue course themes outside of class. Three teaching assistants were on hand to answer questions after the lectures, but all of the talk in academe today about student-centered teaching, active learning, and providing a "guide on the side" was silenced by the reality of all those students packed into a lecture hall.

Far across the country and several worlds away, Ian McFadden, also a first-year college student, was typing excitedly at his computer at home in Denver. Unlike Suarez, who was 18 last year and fresh from high school, McFadden was what universities call a "non-traditional" student. A lack of financial resources had compelled him to serve in the U.S. Army for six years after high school. His service complete, he was working last year as a delivery-truck driver and decided to pursue his B.A. through the distance-learning programs of the University of Phoenix.

Because Phoenix's courses are offered on a rolling basis, rather than by the semester McFadden was able to take one course at a time; he hoped to take five or six courses last year. He received his assignments, most of his course materials, and his evaluations online, and he conferred with his instructors often, in online conferences and through e-mail.

At the same time, back in the Midwest, Paul Toshido sat in a classroom on the campus of DePauw University, surrounded by 30 other students. Like Suarez, he was taking an introductory history survey, but like McFadden, he was able to ask his instructor questions by e-mail. Toshido's course offered lectures each week, as well as a wide variety of in-class and online discussions, debates, and role-playing.

Those three students provide a glimpse of the widely divergent experiences of American college and university students today.

The University of Phoenix now enrolls more than 56,000 students each year, with 7,000 students taking their courses exclusively online. According to a report by the Pew Higher Education Roundtable, by 2000 non-traditional students like McFadden will make up at least 60 percent of all college students. For them, distance learning will provide flexibility in terms of when, where, and how many courses to take.

For such students, there is clear evidence that distance education can be as successful as classroom-based instruction, if not more so. As Greg Kearsley, a professor of instructional technology and distance education, writes in his *A Guide to Online Education*, those students who take online courses "typically find that they are drawn into the subject matter of the class more deeply than in a traditional course because of the discussions they get involved in." That may well be because the instructor does not monopolize attention in an online environment. Anyone who "lectures" to an online group will quickly find participants tuning out and turning off the computer.

Kearsley also suggests that distance education minimizes the prejudice that often arises in face-to-face settings. Unless someone deliberately reveals personal information, participants have no idea of the age, gender, ethnic background, or physical characteristics of others

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Dennis A. Trinkle is an assistant professor of history at DePauw University, and executive director of the American Association for History and Computing. *This article first appeared in The Chronicle of Higher Education, and is reprinted with permission.*

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)ePauw University

online. The discussions that ensue are about as free of sociocultural bias as possible. Distance education, in short, can be more stimulating, and encourage more critical reasoning than the traditional large lecture class, because it allows the kind of interaction that takes place most fully in small-group settings.

In their recent book, *Building a Web-Based Education System*, Colin McCormack and David Jones—professors of information and computing systems—point to hundreds of anecdotal case studies and scholarly surveys suggesting that distance education is more successful than the large survey courses at many public colleges and universities. For example, the sociologist Jerald G. Schutte, of California State University at Northridge, reports that he randomly divided students in a social-statistics course into two groups, one that was taught in a traditional classroom and the other entirely online. Test scores on both the midterm and the final examinations were an average of 20 percent higher for those in the online course. Schutte also notes that students in distance-education courses say they have more peer contact with others in the class, spend more time on class work, understand the material better, and enjoy it more.

On the other hand, another study, conducted by the Sloan Center for Asynchronous Learning Environments at the University of Illinois at Urbana-Champaign, reminds us that distance learning does not necessarily produce more contact with professors—or better outcomes. The online course can be as abused as the traditional survey class.

Moreover, we should remember that distance learning is not the only path to good education. Just as many studies praise the benefits of online courses, an equally wide array suggests that small classes with flexible, frequent, and face-to-face interaction among students and an instructor are optimum—when financially and practically possible. That's the lesson of several decades of research on small class size.

Paul Toshido's experience raises another issue. A study conducted in 1998 by the American Association for History and Computing suggests that the most effective use of instructional technology is being made in small-class settings, where technology is being adopted not just to promote efficiency or ameliorate crowded classrooms, but to be integrated into classes that also provide face-to-face interaction.

Educators must remember that, for most students, such instruction is simply not an option. Serious shortcomings in today's American educational system provide the other side of the equation in explaining the appeal of electronic universities. Marianne Suarez's experience in her survey course, sitting among hundreds of classmates, is shared by many other students, particularly those at large public institutions. The reality is that, as universities and colleges have become increasingly imbued with commercial philosophies, administrators have shuffled students into ever-larger classes, often taught by adjuncts and mediated by stables of teaching assistants.

At the same time, administrators also sometimes mistakenly assume that distance education can solve all of higher education's ills. The recent survey by the history-and-computing association quotes many professors who are alarmed by the rush to technology: A majority of the almost 500 professors who responded called their institutions' technology policies misguided or insufficient. Charges that administrators were forcing the adoption of technology so rapidly that instructors could not decide how to use it most effectively echoed throughout the survey—as did suggestions that an increase in full-time professors would produce as much good teaching as new computer labs would.

It is clear, however, that administrators and universities are pressing ahead with a vision of computer technology as the golden solution to challenges ranging from rising costs to calls for greater accountability. Indeed, the success of the University of Phoenix and other virtual universities is not only drawing attention to the problems of access and instruction in higher education; even more, that success is seen as a market threat. Institutions are not increasing tenure-track faculty positions, reducing course sizes, or emphasizing students' needs. But they are launching their own online courses. Across the country, colleges and universities are rushing to stake out their territory on the electronic frontier.

As that happens, supporters of distance education—including administrators who see it as a cheap alternative to hiring more faculty members—need to remember that not all students are best served by electronic instruction. But critics of distance education must also keep in mind that many non-traditional students will undeniably benefit from its expansion. So, too, will the Marianne Suarezes, lost among their classmates. The reality of distance learning is complex, and we must give it the measured consideration it demands. ■

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Lessons Learned From Teaching With Technology...

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structions, placed the equipment on a cart, and rolled it right into the classroom. Unfortunately, what I thought would work did not, and the presentation failed to appear on the screen. After ten minutes of fiddling with the technology trying to make it work, I realized by my students' reaction that my tenacity was becoming a serious liability. I had to abandon my plan and quickly change directions.

At that point, I vowed to at least have handouts or an outline ready in the event that the technology did not work in the future. Which is exactly what I did for the next failure, which occurred more recently. I had planned a PowerPoint presentation and a simulation demonstration; to prepare for an emergency and remembering my earlier experience, I had copied the PowerPoint script outline for students to follow. To ensure the equipment worked properly, I tested it in the classroom an hour before class began. I felt confident the presentation would proceed as I had planned. What I was not prepared for was the sunlight that illuminated the screen with glowing accuracy at the exact moment of the presentation. Although I had presented information in this classroom prior to this lesson (apparently unnoticed by me on cloudy days), this day was a disaster.

I learned that one must anticipate all of the variables that can potentially affect a presentation, and that in the end students do not appreciate technology that keeps them waiting or technology usage that does not meaningfully enhance the content. As negative as this seems, the lesson I learned is that one should always be ready for technology to fail because, unfortunately, inevitably, there will be occasions when it will.

Lesson Four: In many instances, the process is more important than the product developed using technology

Using technology for technology's sake should be avoided at all costs because many of the products delivered under this modus operandi are neither exemplary nor promising.

New technological tools have the potential to seduce, and some instructors may fall prey to developing products that are simply show-

> *Always be prepared for technology not working... a warning that has serious consequences if not heeded. In other words, have handouts, overheads, and your own teaching skills as substitutes when planned technology lessons fail.*

case exhibits for their newly acquired skills.

One valuable learning experience occurred when I announced to a class that we would be learning a software package—*together*. The students were at the master's level, and as part of the class assignment we talked about how to use this software to communicate, collaborate, and construct meaning. During our discussions, the critical idea emerged that technology is a tool that facilitates and enhances learning; it is a process-oriented delivery system that can engage the learner and aid in developing important critical thinking skills. We explored this "philosophy of technology" together, and together we traveled beyond the rote acquisition of skills. I learned that as an instructor I need to explore the many facets of technology *with my students*, and therefore develop a process for *learning* as well as teaching with technology that is both personally rewarding and renewing.

Lesson Five: Technology can affect teaching style

Becoming an advocate of technology may be easy, but danger looms for those who cross the line that leads to zealot. Recently I read through my teaching evaluations, and was stopped cold by a student comment that on a few occasions the "instructor seems too formal...." This had been a class where I had heavily infused technology. Not willing to blame technology for this, I thought that perhaps I needed to "loosen up" a bit. Yet I couldn't overlook the nagging notion that perhaps the technology had played a small role.

I questioned if using too much technology (Lesson One!) could result in "scripted" presentations that in some ways depersonalize the learning/teaching process. Popular presentation software makes it easy to glide from one point to another in a non-linear fashion and, if not developed properly, can stifle students' ability to think beyond the presentation or to ask the really critical questions. I learned from this student's comment that perhaps instruction using technology should aim to be personal, less intimidating and inviting for both questions and interactivity. I also learned that essentially no amount of technology can make up for a smile, the mention of a student's name, the pat on the back that makes teach-

ing and learning a reciprocally engaging activity.

Lesson Six: Be willing to share what you have learned

Recently, a valued colleague, who in a few months would assume a college presidency, asked in a tentative tone, "Can you teach me how to do PowerPoint? I want to offer a highly visual introduction of my goals and vision to the faculty of my new institution." It was just last year I had tried to encourage my colleague to explore some of the user-friendly software on the market only to be told that "I don't want to learn how the airplane works, I just want to fly it." Now my colleague had decided that learning how to use this technology for a specific purpose was a powerful motivator for acquiring new skills.

Upon reflection, I discovered a valuable lesson I had learned was that professional enrichment around technology is a developmental process. When offering assistance to colleagues, it may be best to provide professional development assistance that is 1) connected to a specific need and purpose; 2) started as a small, engaging enterprise with easy-to-use activities and software; and 3) encouraged and supported through informal (as in the case of my colleague) activities in a risk-free environment.

The Bottom Line

I will take my six lessons learned in technology with me into the new year, and for what I have learned, become a better teacher. I've learned that technology cannot teach —that teachers teach—and that the tools for technology do not always enhance learning, but can only provide avenues for learning when placed in the capable hands of skilled professionals. I have also learned that taking risks with technology and learning can be thrill-producing and anxiety-inducing. But most of all, I have learned that I must continually reflect, evaluate, and adjust my instruction when using technology and be as malleable for change and upgrading as these tools of the future are. ■

"Paradoxically, the faculty rarely are interested in new technologies to support teaching and learning. The faculty are predominantly focused on psychosocial factors: personal affective issues and their needs to meet institutional requirements for tenure. Because they already are successful teachers and researchers, most faculty members feel relatively little need to make dramatic changes in either area. Subject-expert faculty have minimal incentive to alter their current practices—and add to their work loads—by learning new high-tech skills. Few colleges reward the use of technology with tenure or promotion. In addition, both social status issues and affective responses to being confronted with new technology (anxiety, fear, conflict related to cognitive dissonance) inhibit faculty from participating in technology training and from implementing the technologies after training."

Patricia Cravener
"Piloting the Psychosocial Model of Faculty Development"
The Technology Source
July/August 1999

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EDUTECH RESPONDS

Q. We're about to implement a new across-the-board desktop equipment replacement cycle. Everyone sees this as being the right thing to do, and we think we've worked out a way to make it affordable. The problem is that some of us think that we can "cascade" older machines to users whose needs for equipment may not be as demanding as those who require really powerful computers. Others, however, have heard about problems on campuses that have tried to do this. Any advice?

A. *Cascading, or recycling older equipment, is one of those ideas that sounds attractive but seldom works out in practice. Two problems with it: first, the more you recycle, the larger the variety of configurations will be that your computing services folks will have to support. Given the typical support costs on most campuses today (high), and the likelihood that your computer center is ever fully and reasonably staffed (low), the move should be in the other direction: to reduce support costs, not increase them. The second problem is that even when computing needs appear to be relatively simple, they are rarely so in fact. A person, for example, who "only" needs word processing and e-mail also typically needs enough hardware and software to support a user-friendly (graphical) environment, online help, and a transparent link between the two functions. Even Web access today is moving into the category of something everyone needs, regardless of job function or position on campus. The easier this becomes to use effectively, the more sophisticated it all becomes underneath, thereby requiring more powerful hardware. Recycling hardware might work if the software world were standing still, but it's obviously not.*

Q. Should we look at re-engineering our business processes before we search for a new administrative information system?

A. *That's most everyone's instinct, because then you can search for a system that best meets your functional needs. On the other hand, there is a lot to be said for accelerating the process of acquiring a new system, then letting the system be a tool in helping you re-engineer. Fortunately, the good systems that are available today are sufficiently flexible to allow you to acquire and implement them in one functional environment and then change them significantly, but relatively easily, when your functional environment changes. One thing for sure: you don't want to do both at once.*

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THE EDUTECH REPORT

September 1999

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Number 6

The Education Technology Newsletter for Faculty and Administrators

Hot Issues 1999-2000

by Thomas Warger, Five Colleges

Well, of course, MP3 is hot—and that from a vice provost, no less. "Whose issues?" seems to be echoing back as the counter question from respondents to our annual survey of *Edutech Report* subscribers. There was more widespread acknowledgment this year that information technology on campus has multiple audiences with diverging agendas; respondents were more reserved about being able to speak for their campus as ensembles. More than in any past year the responses this time were remarkably diverse, with fewer of the repeating chords that identified the dominant themes in previous surveys. The pieces do ultimately suggest some patterns and echo the findings of national forums, such as the report of the EDUCAUSE Current Issues Committee [*CAUSE/EFFECT*, Volume 22 Number 1 1999]. But first listen to the music, because how these themes find their voices is what is worth hearing.

Web multimedia. MP3, DVD, RealPlayer, and so forth—most of which have come from the commercialization of the Internet and are now asserting themselves in our lives and on our campuses—are blasting us beyond the static Web pages, text-oriented chat forums, and threaded message postings that we so recently thought were new and interesting. The students are out in front in trying out these new media and counting them as ordinary amenities in their personal information spaces. So just when we have finally wired the campus, and the faculty are able to rethink their modes of instruction, the networks are humming with amazing new applications that have not waited to be invited, much less evaluated and debated for adoption. The Internet and

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"The extent to which a student gains the same pedagogical benefit from a printout of your Web resources as from the resources themselves is the extent to which you have done nothing of pedagogical value by using the Web. You may have shifted the nature of student access by moving to the Web, but access is not insight. A printout of your Web resources should be as incapable of communicating the insights those resources offer as, say, a printout of the words of 'Ode to Joy' is incapable of capturing Beethoven's *Ninth Symphony*."

Alistair B. Fraser
"Colleges Should Tap the Pedagogical Potential of the World-Wide Web"
Chronicle of Higher Education
August 6, 1999

NEWSBRIEFS

CALIFORNIA STATE UNIVERSITY CHANGES ITS JOURNAL SUBSCRIPTION MODEL

The California State University system will have Internet-based subscriptions to over 500 scholarly journals through a new arrangement with EBSCO Information Services. In an effort to change the way this has been done in the past, and to convince publishers to consider their requirements, CSU put together a unique RFP, culminating a two-year project of developing a Journal Access Core Collection (JACC) of nearly 1,300 titles that the CSU system desires to acquire electronically. Titles comprising JACC were selected based on print titles for which subscriptions are purchased by 15 or more of CSU's 21 campus libraries. Although not all of the titles on the JACC list are presently offered electronically, CSU expects to add titles that meet their usage criteria as they become available and as publishers agree to meet their terms.

For more information, see www.ebsco.com/home/whatsnew/california.stm.

REPORT ON TECHNOLOGY FOR STUDENTS WITH DISABILITIES

A new report presenting the results of a two-year Canadian empirical study examining the use of computer technologies by college and university students with disabilities is now available. In addition to extensive discussion and findings, the report contains sets of recommendations directed at professors, government agencies, developers and suppliers of computer technology, and personnel providing services to students with disabilities. Among the resources included in the appendices is a listing of what specific hardware and software are typically being used by students with various disabilities.

There is also an online discussion forum about the report. Details of the forum, along with more background on the project can be found at http://omega.dawsoncollege.qc.ca/adaptech.

AWARDS IN COURSE REDESIGN

The Pew Grant Program in Course Redesign has announced the first of three rounds of grant awards. The purpose of this institutional grant program is to encourage colleges and universities to redesign their instructional approaches using technology to achieve cost savings as well as quality enhancements. Redesign projects will focus on large-enrollment, introductory courses, which have the potential of impacting significant student numbers and generating substantial cost savings. The institutions that have received a $200,000 grant include Indiana University-Purdue University at Indianapolis, Penn State University, Rio Salado College (Maricopa Community College District), State University of New York at Buffalo, University of Central Florida, University of Colorado-Boulder, University of Illinois at Urbana-Champaign, University of Southern Maine, University of Wisconsin-Madison, and Virginia Tech.

Descriptions of each project, as well as more information about how to apply for a grant in rounds two and three, see http://www.center.rpi.edu.

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Hot Issues 1999-2000...

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the Web were devised within the research and educational community, and they convinced us that we needed to network all computers. But the internetworked environment is not "ours" anymore; while the research community develops Internet2, the rise of Web multimedia puts us on notice that there are already multiple and competing visions of what the network is for.

The multiplicity of it all. A surprising number of campuses report that paring down the number of e-mail technologies and packages is high on their agenda. It is no longer sufficient that each solution function in its own right; the high cost of supporting multiple choices is becoming more and more apparent, as is the campus community's annoyance at the differences in features and methods in use. The resurgence of Apple computers with the success of the G3 and iMac has, on some campuses, brought back the whole set of issues around supporting incompatible microcomputer platforms—matters of expense and dilution of service. Just when Windows appeared ready to sweep the field, the Mac revives and Linux begins to win converts. The licensing costs and technical aspects of supporting access to non-public sources of networked information are also becoming worrisome. As one technology administrator put it, we are facing the "loss of efficiency and economy of scale."

There is also a human dimension to the increase of difference in the current technology scene. One correspondent noted that not everyone on campus has reached the threshold of "technology readiness." She says, "We need to ... bring students up to a common level of competencies to make them successful in an educational environment that assumes an increasing ... proficiency with information technology." The commonly repeated assertion that each year's incoming new students are more technology-comfortable is not an adequate understanding of a significant range of differences in preparedness among the students. The faculty are catching on, too. One student commented, "The professors are getting smart: instead of asking us to write down our e-mail addresses [on a paper list], they say, 'Send me an e-mail.' Then they just have to click to add you to their mailing list."

> *The pressure of working for senior administrators who are reluctant to engage IT issues is the most frequently cited complaint. The sharpest form of discomfort appears to be in cases where IT leaders are caught between impatient constituencies and indecisive leaders.*

Web enablement. Hot spots are flaring up in some facets of the Web, problems brought on to some extent by the very success of the Web. As the number of faculty and courses using Web pages grows, we face a quantum increase in the difficulty of organizing, managing, and delivering that service (with high reliability). There is a discontinuity in scale between the support requirements of the first few adopters—and a few casually managed servers—and the more stringent demands of Web service that has become mainstreamed. Robust networks, fault-tolerant and redundant hardware, advanced disk-management and data backup methods, and standards covering the classification, naming, quality, and permanence of information are required as Web-served information becomes the norm. This begins to sound more like the era of the mainframe computer than that of the free-wheeling, peer-to-peer network.

Pressure is also building on those administrative services that have not also joined the movement to do business via the Web. Even some of those that have, find the on-going chore of maintaining their pages and updating their information an unanticipated burden. But those offices that have not launched Web services are beginning to face complaints. On a number of campuses, students have stepped into the breach to write applications such as course and schedule planners.

Many administrative offices find themselves without the skills and staff time to work on Web pages. And some rely on older records-management systems based on technology that is not compatible with Web delivery of information, at least not without extensive development of middleware, which is probably the hardest software to produce in any event.

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Thomas Warger is Assistant Coordinator for Information Systems at Five Colleges, Inc. in Amherst, Massachusetts and is a frequent contributor to this newsletter. He has written our annual Hot Issues article for the last three years.

Using Gen-Xers To

by D

"The best staff member in the Information Technology department is leaving." "In the next three months we need two new subnets and the Network Manager just left for greener pastures." "None of the staff knows how to complete the Financial Aid interface. It's almost as if we need to start over." How many of us have made similar comments?

Can anything prevent a staff member from leaving? With so many jobs available in the open market at greatly increased salaries, what really keeps anyone from leaving? And why is it that a mere ten percent of all current graduates are preparing for jobs within IT? To make things even worse, at the same time that we are experiencing so many vacancies in key positions, the typical college is incorporating additional technologies that need to be supported.

Staff from Generation X may be the answer. "Gen-Xers," as they are known (generally, anyone born between 1961 and 1981), can be a great source of excellent staff assistance in the IT department. Some of them are still students; most are recent graduates. Many may already be familiar with your IT tools and programs. But there are some important general differences about this generation of folks that suggest that in order to have them become a really effective resource for the IT department, some changes are necessary.

For one thing, IT needs a new look and feel. Is your IT department structured to allow for dynamic changes in technology and processes? Are the staff managed in such a way that Gen-Xers could call it home? Keep in mind that they are hard to recruit and even harder to retain. The image of a cold-pizza-eating, 90-hours-per-week programmer does not conform to the aspirations of most Gen-Xers. They want to work hard, but have the time to play hard also. They want and expect high salaries with time to spend the money. How about this: Bill Gates on roller blades, earphones attached to a wrist computer, listening to *Start It Up*, dreaming of Windows2000? What if Netscape or Sun sponsored a Net Rave?

> *One of the styles of this generation is their ability to blur the boundaries between work and leisure. With phones in their pockets and pagers on their hips, they go about their lives expecting instant and constant communication with the world.*

Even in a lot of our classrooms, things are behind the times. Many of our institutions are still teaching antiquated computing skills and technology hard-coded to the seventies and eighties. I pray that Shelly and Cashman's *Introduction to Computing and Data Processing* is no longer a text of choice, but I fear it still may be. I walk by classrooms on campuses where I hear about mainframes and impact printers as required learning. Students with hot skills (not including the renewed need for COBOL because of Y2K issues) are expecting to create Web pages, become Webmasters or develop computer games or 3D graphics. They hope to be coding JavaBeans, not drinking them.

In addition to updating the technical environment, interesting projects can be used to attract student workers to staying on past graduation. Such things, for instance, as creating a database to track and report Student Government activities or assigning the students who complain about poor user support to be in charge of a plan to improve services. Does a full-time IT staff member need to write the code for a new project, or could the problem become the project of a class in Database Design? Those who run the help desk with the required guidance necessary to learn and complete all the steps could help design solutions to other users' problems. In the process, students become accustomed to working with users at every level of ability, and are better prepared to enter the workforce. What better training or experience could a student receive than to learn the most efficient, effective methods of database design and implementation? They would begin early to ask the right questions of the right people. They would learn how to work together in teams, and work with users to meet their specific needs.

A typical Gen-Xer

One of the styles of this generation is their ability to blur the boundaries between work and leisure. With phones in their pockets and

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lp Build Your Future

ıy Hess

pagers on their hips, they go about their lives expecting instant and constant communication with the world. ATMs, PCs, and MTV are all instant and constant. Their security, personal or professional, does not rely on stability but on mobility, whereas it is just the opposite for many older workers. Who of us in the older generation wants to have our lives interrupted so continuously? With the constant and upcoming changes in the workplace, we can't live without these young people. In fact they can be a real asset.

A Gen X-er can be given time off on Friday afternoon in exchange for putting in a few hours on Sunday. It's all a part of the flexibility that they demand and love. And it's such an important part of today's technology management requirements.

They aren't ready for the "corporate lifestyle" and don't appreciate it. They want flexibility, money, and the time to spend it. This flexibility means that they like and want to change, and often. They say that if they've got a job to do, they want to get it done and get out of there. A strictly defined workday is not necessary.

They usually lack office expertise and the ability to work in a team or within a group. Supervision and training needs to be built into their job descriptions and their career plans. If it's true that workers in their thirties have held up to nine jobs, should we spend time and training on them so that they can parlay it into a big career move? Yes, because they are much more willing to stay with an employer that invests in training for them and one who cares about them. I heard it best from a twenty-eight-year old: "I'm interested in working for someone who pays attention to retention."

They are accustomed to getting their information spiced with entertainment or at least in a way that is hands-on. So make them part of the training unit that creates sessions that are designed to entice users who never "have the time to attend."

Gen-Xers want and need to know that what they do is important to the greater outcome, to the institution itself. They don't want just tasks to do, or they would still be working at the fast-food joint. They really want their skills to fit into the enterprise.

Gen-Xers are very willing to e-mail the boss with suggestions or complaints. They don't "know their place" or aren't willing to be put into it. And the boss must react or respond quickly or they lose interest and decide to leave. There is no sense of loyalty, which can actually work in your favor, since some job skills can change quickly, and may be needed for only a short period of time. Hot skills work like that—they change constantly. Maybe all you needed last month was some multimedia presentation created for training. A Gen-Xer did it and now he's gone, or at least, assigned to a new project. You no longer have to figure out how to keep them happy on a single project.

Gen-Xers want and need to know that what they do is important to the greater outcome, to the institution itself. They don't want just tasks to do, or they would still be working at the fast-food joint. They really want their skills to fit into the enterprise.

Managing them

They bring enthusiasm and energy and get bored easily. They have no desire to work for a tired institution or an old-fashioned IT director, and want to work where the pace is in line with their own. Bruce Tulgan, author of *Managing Generation X: How to Bring Out the Best in Young Talent*, says that we can find the keys to success. He suggests the following as some ways to keep them happy. 1) Use the new-staff orientation period as an opportunity to start a 'personal retention plan,' a career plan. The question is, "Where can we as an organization fit into your plan?" 2) Focus on training. Gen-Xers want to manage themselves, so it is important to provide project management training. 3) Manage as if you are a coach —and be specific. 4) Provide nonfinancial rewards, including flextime and telecommuting. 5) Provide for ways of putting their personal stamp on projects so they have a sense of mission and commitment. 6) Train them and supervise them —then enjoy the energy and enthusiasm they bring to the office environment.

As Tulgan says, "We're all moving into the workplace of the future together. It's all about competing for the best people. And the best people are thinking about their work-lives in a whole new way." ■

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Hot Issues: 1999-2000...

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The balance of technology ownership. As IT administrators look ahead, they are asking where the balance will settle between institutional ownership (and cost) for technology and student ownership and cost. Some campuses are returning to the question of whether to provide or require student computers. As they look at the total cost of technology there is a strong impulse to focus institutional resources on network and services, and to transfer the cost of computers to the students' discretionary purchases or to the tuition they are charged. The falling cost of computers and the increasing ease of getting them up on the campus network encourages that thinking, but there is still palpable discomfort and indecision on this point in many administrations. The issues stemming from ownership quickly branch out from cost to those of control, standards, evolution and retirement of equipment, and the whole gamut of support activities, which are generally viewed as playing out differently when the equipment is institutionally chosen and owned and when acquired as private and individual purchases.

Staff recruitment and retention. Just as last year, there is no consensus on how hot this issue is. Those who report it as a problem find it a high priority. Many others don't mention it. Among those who believe it to be a long-term difficulty, some are experimenting with ways to "grown their own," creating internships for fresh graduates or relationships with community colleges and technical schools that offer training and certification programs.

Intellectual property and fair use. While lawmakers, the software and publishing industries, and the academic community have been locked in battle to determine the future of copyright and other protections for intellectual property and the scope and nature of "fair use," reports coming back from the front lines of technology support show signs of real difficulty in coping with current practices. The need to educate the campus community regarding intellectual property in the digital era is joining the list of training topics and frequently asked questions. What appears to be new and urgent is that as those responsible for the institution's compliance become better informed, they are discovering the extent of disarray and disregard within the campus community.

> *From within the job itself, a leading source of anxiety is the difficulty of anticipating needs and expectations in time to plan, budget, and implement solutions—a sub-text in many of the hot topics in this year's report.*

Getting hot—some new topics. Although not (yet) widespread, there is growing interest in the possibilities for inter-institutional cooperation in information technology. Some consortia have hired staff to manage and promote joint projects. Other colleges and universities are exploring cooperative options on a more *ad hoc* basis. The key question appears to be: "What elements of IT work can we centralize, standardize, and share; what should we distribute, diversify, and keep to ourselves?"

Some colleges and universities have established e-commerce capabilities, having addressed matters of network security, authentication of users, and online authorizations. Examples included computer sales and payments of fees. The early adopters have anticipated that students and their families will soon expect or demand to conduct business in this fashion.

Not hot. Basic networking was cited by several correspondents as an issue that was recently hot but has cooled off as campus networking has finally reached just about everyone. The issue has not disappeared entirely: replacement and/or upgrade of older cable plants and electronics is a major project now at those colleges and universities that networked during the Category-3 era. Pressures on network capacity and diversity of services lead some to look ahead to Internet2 and think about how to cope in the interim.

One university reported encouraging success in using a data warehouse to substitute self-service for custom data-extraction programming. Data warehouse technology, while rarely hot, has been a growing trend in academe, after getting off to a slow start relative to the commercial world. A key success factor appears to be the provision of a good interface to enable those who were formerly clients of programming services to obtain that same data.

Encouraging news also comes on the dorm-computing front. One university claims that 90% of its students who own computers are now

able to install their computers on the campus network themselves by using a printed instruction guide and online registration and help services. On many campuses, dorm networking support has become a service of the housing department, and no longer the IT department. Several small colleges report that in each of the past two or three years the time and difficulty encountered in getting students up on the network has decreased. Computers now tend to be more network-ready right out of the box, thanks to better accommodation of TCP/IP by the Windows and Mac operating systems.

How's the job, compared to a few years ago? The most common answer to this annual question is now, "I'm too new in this position to be able to say." Is job tenure getting short? Not necessarily. It is worth noting that not all *Edutech Report* readers are CIOs or even IT staff. As information technology management has become part of many other job descriptions and new positions, the survey responses have reflected those changes.

Still, the pressure of working for senior administrators who are reluctant to engage IT issues is the most frequently cited complaint. The sharpest form of discomfort appears to be in cases where IT leaders are caught between impatient constituencies and indecisive leaders.

From within the job itself, a leading source of anxiety is the difficulty of anticipating needs and expectations in time to plan, budget, and implement solutions—a sub-text in many of the hot topics in this year's report.

But what might be a new theme is recognition that IT seems less and less something that anyone can steer. There are too many stakeholders, too many new directions and sources of influence and less time between the development of something new and its arrival on our doorstep—whether the latest nifty browser plug-in or yet another new virus.

And yet another indication that many things come full-circle: in the 1980s many future CIOs began that career phase by leaving faculty positions; as we begin the year 2000, at least a few have decided to go back to the faculty, and others have added faculty status to their current jobs. ■

"Speaking in terms of 'integrating technology into teaching' or 'teaching with technology' is awkward because the term technology is still on center stage.... Instructional technologists should think of promoting 'innovation' in teaching and learning. Rather than frame their task as getting faculty to buy into new technologies, they should focus on unleashing the creative energies of the bright, motivated experts that make up the faculty of colleges and universities. Faculty members prize innovation. The creation of new knowledge and techniques is what beckoned most of them to life in the Academy."

Mark Donovan
"Rethinking Faculty Support"
The Technology Source
September/October 1999

In Future Issues

- *Why the central computer services department needs some competition*
- *What, if anything, IT has to do with institutional quality*
- *Successfully combining reengineering with new system implementation*

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EDUTECH RESPONDS

Q. We have a very old set of information systems, mostly written in the 1980s. In trying to make them more useful, we have been slowly doing things like adding a Web front end for data access. Some of us think this is a wasteful activity in that this will all be scrapped eventually. Others think that at least for the moment, it is a good and relatively inexpensive substitute for a complete system replacement. What do you think?

A. *Making data more accessible is useful, but it's no substitute for a modern information system. One of the most important things about an AIS, and something that will be very hard to just bolt on to the current system, is the concept of the information system as a repository for processes. That is, many people at the user level should be able to create and modify processes by entering them directly into the system, as if they were data. To allow this, the system must be driven by rules, valid value tables, work flow charts, etc. In most legacy systems, this stuff must be hard coded by central programmers, which eliminates the possibility of users directly modeling the institution's processes. For example, let's say that a department wants to implement a new policy: every applicant for Program X must have one additional qualification, a certain score in a placement test. In a modern system, the department can add this new requirement without help from central programmers. Not only will there be a place to maintain the data (score on the test), but the new requirement can be easily added to the process for checking missing documents and generating letters to applicants, can be included in the report of applicants who are ready to be considered for admission, etc. The process orientation of modern systems is what really distinguishes them from legacy systems.*

Q. We in the IT department want to support the faculty better, but most of our folks do not have experience in the specific applications that faculty are interested in, especially for classroom technology. Is there some way to resolve this?

A. *One of the ways many campuses have handled this problem is by establishing joint appointments between academic departments and the computer center. Typically, these positions would be staffed by those who can bridge both worlds, keeping up IT standards and providing very tailored user services at the same time.*

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The Education Technology Newsletter for Faculty and Administrators

Taking a Ride on the IT Auto Train

Howard Strauss, Princeton University

In April of this year, I traveled from Florida to Virginia on Amtrak's Auto Train. I did this, as hordes of other people have done, to avoid driving zillions of monotonous miles on Route 95, which I had done many times in the past. Amtrak's Auto Train sounded like a neat thing to do. It wasn't all that cheap, but it promised a non-stop trip at speeds up to 70 mph. It also promised gourmet meals, comfy reclining seats, entertainment, and views of the beautiful countryside that I had never been able to see from my car while mired in Route 95 traffic and assaulted by "South of the Border" billboards. All in all, it sounded like a wonderful trip.

And in many ways, it was. However, there were also many things about it that made it all considerably less than wonderful. My car, my mom, and I boarded the Auto Train in Sanford, Florida for its non-stop run to Lorton, Virginia. It's a good bet you have never heard of either of these cities unless you've used the Auto Train or happen to live in one of them. The reason you have never heard of them is that virtually no one really wants to travel between these cities. In my case, I really wanted to travel from West Palm Beach, Florida to Philadelphia, Pennsylvania. Many people I met on the Auto Train wanted to go from other major cities in Florida, such as Miami or Fort Lauderdale, to major cities in the Northeast, such as New York or Boston. Nevertheless, for nearly every Auto-Train passenger hoping to avoid long drives on Route 95, there remain hours of doing just that—driving on Route 95 in Florida to get to the Auto Train and hours more driving once the Auto Train dumps you in Lorton, Virginia.

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"The virtual campus may widen opportunities for some, but not by and large for those at the low end of the socioeconomic scale, who have traditionally been under-represented in higher education. Virtual space is infinite, but it does not promise universality or equity, nor is it appropriate for many students whose experience with technology is limited—and who might benefit far more from traditional delivery systems."

Lawrence Gladieux and
Watson Scott Swail
"Who Will Have Access to the Virtual University?"
AAHE Bulletin
October 1999

NEWSBRIEFS

DOES TECHNOLOGY MAKE A DIFFERENCE?

Technology is an expensive and often controversial resource for educational agencies; measuring the effectiveness of this investment is often difficult. Classroom and educational environments vary widely, and the technology changes constantly. Technology is one of many factors in an educational setting, and there is no single definition of "effective use" of technology when it is used by different groups in different ways. ICLT 2000, the International Conference on Learning with Technology, synthesizes research, best practices, and policy experiences into a new framework of understanding about educational technology. Aimed at educators, researchers, and policymakers from around the world, it features invited and competitive papers and panels, keynote speakers, and roundtable discussions.

The conference will be held at the Tuttleman Learning Center at Temple University in Philadelphia on March 8–10, 2000. For more information, see http://www.temple.edu/iclt.

MELLON FOUNDATION GRANTS FOCUS ON COST-EFFECTIVENESS

The Andrew W. Mellon Foundation has begun an initiative to test technology projects that enhance learning in cost-effective ways. The objective is to find faculty champions in a variety of kinds of higher education institutions, ranging from community colleges to research universities, who will design and carry out experiments to test technological applications that may be both cost-effective and educationally effective. Subject matter, course structure, time and place, type of technology, and other variables are all open to discussion. The Foundation hopes that such experiments will lead to niche applications of technology to teaching which are educationally sound and cost-effective and which preserve resources for continuing to do well many of the traditional activities which are so highly valued by students, by faculties, and by society. Gilbert R. Whitaker, dean and professor of business economics of the Jones Graduate School of Administration at Rice University, will oversee this initiative.

For more information, see http://www.mellon.org/cutt.html.

CHALLENGES OF ADVANCED NETWORKING

This first volume in the EDUCAUSE Leadership Strategies series, *Preparing Your Campus for a Networked Future*, is designed to help college and university presidents and other top leaders in higher education understand and prepare for the impact of advanced networking on their institutions. The book, edited by EDUCAUSE Vice President Mark Luker, focuses on high-level issues and shares the visions and ideas of noted experts on the opportunities and challenges to come. It also provides specific tips and recommendations on how individual leaders can work to prepare their institutions to be ready and waiting to take advantage of the new opportunities afforded by advanced networking. EDUCAUSE primary representatives will receive a complimentary copy as a benefit of membership. Other orders may be placed at http://www.educause.edu/asp/doclib/abstract.asp?ID=PUB7001.

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Taking a Ride on the IT Auto Train...

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Taking me between the wrong two cities was only the first of many disappointments I found about the Auto Train. On booking my ticket on the Auto Train they stressed how important it was to arrive at Sanford early. How early, I asked. Four hours early is what they suggested. "And you can eat your lunch at our nice facilities," they said. Fortunately, friends had warned me that the food at the train station is scarce, mediocre, and overpriced. They turned out to be right, but I bought some ice cream there anyway to help alleviate the Florida heat and pass the time, since we had left West Palm Beach at 9 a.m. to get to Sanford at noon to catch the 4 p.m. train.

Arriving at noon, there was already a line of cars waiting to board the train. It turns out that it is important to arrive early because loading the cars on the train is done at a glacial pace. Nonetheless, at 3:30, minutes before loading stops, cars arrive and are still accommodated at the last minute on the train. Mine was among the first cars to get loaded. While my early arrival made things convenient for the Auto Train, I had no idea how badly I'd be punished later for helping them out. Arriving at Lorton, I learned that the unloading process is almost as slow as the loading process and that the first cars on are the last ones off. Two hours after they started unloading cars I was finally reunited with mine. And the unloading process is designed in such an interesting way—you are required to stand outside and watch every car (over 200 of them in my case) unload until you get yours. Auto Train's implicit strategy is to reward their worst users and punish their best ones. Folks who squeaked in with their cars at the last minute saved hours of waiting at Sanford and then saved hours more at Lorton as their cars came off first.

Another seemingly nonsensical process: On loading, your car is assigned a random number that is magnetically attached to the door of your car. If the car before you gets number 304, you might get 259, and the car that follows you might get 007. You are told to be sure to remember that number. When cars are unloaded, they announce the number you had to remember. If your car is 259 and you hear car 258 announced it tells you nothing about when your car will be unloaded. So it is necessary to stand nearby and simply wait until your number is called—a process that can take hours. Cars are placed in a small area for you to pick up. If people fail to take their cars out of the small area quickly enough, the entire unloading process slows to a crawl and would soon stop. Is this the best way? Would it be hard to announce cars by the names of the owners, the kind of car, or their license plate numbers? Would it be hard to assign sequential numbers? No, there are many things that could be done to make this process easier for users. But as it is, the process is quite easy for the Auto Train. And to accommodate the long unloading and loading times inherent in this process they just schedule the train's departure many hours after its scheduled arrival.

The Auto Train's implicit strategy is to reward their worst users and punish their best ones. Folks who squeaked in with their cars at the last minute saved hours of waiting at Sanford and then saved hours more at Lorton as their cars came off first.

Getting back to the Sanford-Lorton issue, we might question why the Auto Train doesn't offer service between the cities people actually want to travel between. It turns out the reason is that the three-deck car carriers they use cannot fit under the bridges beyond the cities it serves. Then why don't they use two-deck car carriers? It would make the train longer, and maybe heavier, but long, heavy trains should not be a problem. In fact on the same tracks that the Auto Train uses, freight trains much longer and heavier than it travel freely. However, the Auto Train is as long as it can be. Its length is limited by the length of the sidings that it must pull into to let freight trains by (since freight trains are too long to fit into a siding). Furthermore, freights all have priority over the Auto Train. Oh, and did I mention that there is a single track which must accommodate two-way traffic from Sanford to Lorton? And sidings are spaced fairly far apart. The result of all this is that the Auto Train does not go to the places people really want to go. Though it never stops at any station on the way, it does make many long stops at several sidings adding enough

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Howard Strauss is manager of advanced applications at Princeton University and is a frequent contributor to this publication.

Outsourcing Network Support: Rea

by Mark Cain, Colle

In 1996, the College of Mount St. Joseph began migrating its network from Novell NetWare to Windows NT Server. To prepare my network administrator for the task, I sent him to take the initial sequence of NT classes, at a cost of around $5,000. Three weeks after completing the third course, he tendered his resignation. With a sigh, I sent his replacement through the same training sequence. He lasted a bit over a year, then also resigned. A third individual went through the training, quitting after six months.

The reasons for leaving were varied. Number one left for a large salary increase. Number two left due to the pressure of the position's responsibilities. Number three went to a Microsoft Solution Provider for "the professional challenge." Whatever the reason, after hiring and training three network administrators only to have them leave before the training investment paid off, I decided we needed to find a better way. Stopping the training was out of the question; as one of our colleagues has said, "The only thing worse than training them and having them leave is not training them and having them stay."

"Let's just outsource the whole network," I told my staff. It was a naïve response, born of frustration and desperation, because it didn't consider all the ramifications of such an action. Yet there was the germ of a good idea there.

Reasons

There are persuasive reasons for outsourcing network support. Everyone has a network; everyone needs network support. As a result, network professionals are in short supply, and competition for them is fierce. The bidding war that results from this competitive atmosphere may lead to high turnover, as we raid each other's technical crews. For example, right now, individuals in my college's technical support average slightly under 20 months of service in their current positions.

Experienced network professionals are highly paid, more highly paid than a college or university may be able to afford. An alternative is to take a good technician and train him or her for the position. This can also be expensive. Besides the class costs, newly trained administrators are only minimally competent. It takes months for them to effectively begin applying their training. This not-insignificant ramp-up time coupled with the high turnover further reduces the productive months an organization can expect from these high-in-demand professionals.

Ironically, the training you pay for makes the technician more marketable. It's a vicious circle. You can try to hold onto them by making them agree to stay a set amount of time after training—say two years—or to repay a prorated amount based upon the number of months of their obligation that was not met. I've tried this too, but these agreements are difficult to enforce. Besides, even if you are successful with this, the last thing you want is a disgruntled employee, forced to remain at the institution, who has power over your entire network.

There is another incentive for outsourcing that should not be overlooked. A certain amount of angst is associated with the support of the network, pressure caused by balancing the demands of day-to-day activities, the emergency service calls, and the special projects. When you outsource, you get rid of all of this. Many problems—recruiting talent, training, supervising, and retaining them—become those of the outside firm. The stress of network support and completing special projects goes away as well. You are the client, not the supervisor, of the employee.

Sounds wonderful, doesn't it? But does it work? Well, yes and no. First, let's consider the options.

Options

You can outsource day-to-day service. This would include creating and removing accounts; changing network privileges; making backups; restoring lost data; installing and updating software; etc.

You can outsource emergency service. Networks have to run 24/7. Banker's hours won't suffice when servers crash, wires get severed, and hubs die.

You can outsource special projects. Networks have an organic quality. They grow, they evolve, they develop new capabilities. This evolution results from the addition of new hardware or software or the reconfiguration of the network architecture. The special projects necessary are often labor-intensive and stressful, because they are done on top of day-to-day duties. Because you're doing them for the first time, they require extraordinary amounts of study and advanced planning, along with significant installation time.

You can outsource all or some combination of the above...

Problems

... provided you can afford it. Using an outside firm to manage the net-

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work is more expensive on an hourly basis than paying your own staff. Outsourcers will tell you it really isn't; they cover the costs of benefits, recruiting and training staff, and supervising them. However, even accounting for those elements, you pay a premium for contract labor.

With an outside firm, it's more difficult to predict and contain costs. If you pay consultants on a time-and-materials basis, they work until the job is done. If it takes longer than estimated, too bad, and a $5,000 project can easily become a $10,000 headache or a $15,000 disaster.

Using outsourced staff to handle special network projects can remove stress from your own technical crew, but it can cause other organization problems. Your own employees want to grow professionally, but if all the challenging work is handled by the outsourcer, they may not get the opportunity. College technicians may resent the "good projects" going to consultants.

As with most consultants, outsourcers have little institutional loyalty. They aren't really your employees; they work for somebody else. In addition, while they may know the business world, they usually don't understand higher education, and this lack of understanding can cause problems. For example, the outsourcer may recommend a proxy server to provide firewall protection for the network from potential Internet hackers. All well and good, but as everyone knows, security is typically at odds with functionality. In order to make the network "safer," the consultant may block certain types of traffic, such as streaming audio or ftp. That may be fine in a corporate setting, but in an academic environment, where exploratory inquiry is the name of the game, this lost functionality can adversely affect instruction and scholarship.

There's one other problem dealing with outsourcers, something I describe as the "hot dog" syndrome. Many technical staff get so focused on the technical challenge of a job that they sometimes lose sight of the organizational effect their tinkerings can have. Because outsourcers do not know the institution as well as a college staff member, they might be less sensitive to the ramifications of their actions. In addition, they are not your employees, so you have less control over them.

Some advice

Unless you have a whole lot more money available for consultants than we do, you will probably not be able to afford to outsource all network services and support. What we have finally settled on is using outsourcers for special projects.

This works wonderfully well. The stress of trying to do a special project on top of day-to-day work is effectively exorcised from the organization. Sending your own staff through a steep learning curve is no longer necessary, because even a mid-sized computer consulting firm has a host of technical people with different specialties. Because of this breadth and depth in knowledge and skills, they can implement special projects much more quickly, and then train your staff to maintain the new system.

Some advice to help ensure a successful outsourcing experience:

Carefully define your project. It is important to identify all the deliverables you expect. What is your minimum acceptable product? What is in the scope? What is out of scope? What is your deadline?

Try to cap the price of a project to control costs. There are two ways a consultant might bid a project. One is to offer a set price; the other is to work on a time-and-materials basis. Because of the uncertain nature of technology projects and their tendency to expand beyond the initial scope of the project definition, it may be difficult to get a consultant to offer a set price. If it is necessary to contract a job on a time-and-materials basis, try to negotiate that it will not exceed a certain price.

Make certain the consultant performs a knowledge transfer after the job is done. This should include training your staff and documenting the work.

Get a guarantee. These technologies are inherently unstable, so after the implementation occurs and the company says its job is done, have some agreed-upon "watch" period, during which if it crashes, they will come back and fix it for free.

Consider developing an ongoing relationship. Switching consultants on a regular basis may be a way to keep costs down on a project-by-project basis, but it may be penny-wise and pound-foolish. A sustained partnership with one or two vendors builds a sense of mutual commitment that can pay dividends over the years. But ...

... beware of locking yourself in. You need to check out the competition periodically. Your long-term consulting partner may begin to take you for granted, the price may go up and the service may go down. It pays to occasionally put projects out to bid just to make certain you are getting your money's worth. ■

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Taking a Ride on the IT Auto Train...

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time to the trip so that any car on Route 95 could easily beat it—even counting the time spent at rest areas. Given that the Auto Train makes many stops at sidings, why do they advertise the train as non-stop? Well in railroad jargon, a stop is a stop at a station to let passengers on and off—and it never does that. To a user of the system, of course, a stop for a half-hour to sit on a siding is as disruptive as one at a station, but that doesn't seem to count.

The Auto Train has many system constraints. It has lots of tradeoffs to make. If it makes its trains longer it may have to increase the length of its sidings. To travel to New York it has to raise lots of bridges or lower lots of car carriers. Anything it does to offer its users the service they need will be quite expensive. It has chosen to do none of these. Users, it has decided, will fit into the system as it is.

This is not to say that the Auto Train is not addressing some needs. It is spending substantial sums of money to upgrade its facilities at Lorton, Virginia to make waiting more pleasant. But they are not solving any real problem any user has. In fact they are overlooking user problems and just making a bad situation a bit more tolerable. No user wants to wait in Lorton to board or unload a train. Users don't even want to be in Lorton. Users don't want the wait to be more tolerable, they want it to be shorter and they don't want it to be in Lorton at all. But those are hard problems. It is easier to solve easy problems, even when that is not what the user really needs.

But what about the reclining seats that you can lull yourself to sleep on? This turns out to be just another empty promise. The seats don't recline enough and pairs of seats have hard ridges between them that makes sleeping across two seats nearly impossible. The Auto Train promises nirvana, but delivers far less.

Bored with the promised wonderful scenery that consists of the shacks of poor folks and the declining industrial plant that one finds along railroad tracks, I tried to go off and watch the movie in the movie car. But it is on two tiny TV screens at either end of the bar car where the lights, laughter, and general chaos make seeing or hearing the movie all but impossible. It didn't matter much though, because no seats were available anyway.

> *Having no competition, it seems that the folks who run the Auto Train have endeavored to offer a service completely insensitive to users' needs.*

Overall, I concluded that the only reason the Auto Train is so successful—it is hard to book a seat during busy times—is that it has no competition. Having no competition, it seems that the folks who run the Auto Train have endeavored to offer a service completely insensitive to users' needs. But this is shortsighted at best because in fact, there *is* competition for the Auto Train. At least twice a year Route 95 is filled with Lincolns and Cadillacs full of gray-haired seniors making their semi-annual migrations between the northeast and Florida. Hordes of trucks transporting the cars of other people unwilling or unable to drive also vie for space on Route 95. And others arrive by the planeload or are transported by friends and relatives. The Auto Train for many is simply the least of many difficult ways of getting where they need to go. Because so many people make the trip, the Auto Train is usually able to fill one of its trains each day with the small percentage of folks willing to tolerate its shortcomings.

If the Auto Train offered really good service at an affordable price it would be swamped with customers. That would mean it would have to run more than one train per day each way. Isn't it inconvenient to have just one train each way per day? Sure it is. But for the Auto Train folks it works out well since it is the same train going back and forth. Think of the cost and complexity of running more than one train. It boggles the mind. And at any rate, could they really find two trainloads of people who wanted to travel between Sanford and Lorton? Expanding a bad service is unlikely to bring in more customers or to make them happier.

But there would be great benefits to having more people use the Auto Train. Carrying cars and people on one long train is environmentally much more sound than having those cars and people drive individually. Getting lots of cars off Route 95 and onto trains would clear much of the road congestion. If it were easier to get between Florida and the northeast, more people would do it, adding economic benefits to the region and elating travelers who would otherwise be unable to make the trip. But the Auto Train is unlikely to change. Why

should it? It has all the business it needs and it owns the only rails that could be used for the service.

After finally retrieving my car, I drove north on Route 95 towards Philadelphia dreaming of the kind of train that I would really liked to have been on. It made me also think about all those users—computer users, that is—who dream of the kind of IT organization they'd like to take them where they really want to go. If your users are like this, maybe you have them on an IT Auto Train. The Auto Train is actually a great idea, but it's being badly executed by people who have lost sight of a few principles:

Act like you have competition—you just might. Our IT organizations seem to have exclusive ownership of the rails necessary to provide IT services at our institutions. And we no doubt have all the customers we need—in fact, maybe more than we need. A campaign for good dental health used the slogan "Ignore your teeth and they will go away." That may eventually be true of Auto Train users as well as our IT users.

Don't punish your best users and reward the worst ones. Do you ever give the "squeaky wheels" great service, but leave the nice folks who don't fuss too much to fend for themselves? Do you spend more time with folks who have never bothered to learn your systems and less time with those who have?

Don't train your users to learn complex systems. Fix the systems, not your users. Give users the simplest procedures possible; not the simplest they can handle. IT organizations need to look at every process and procedure from a user's point of view. It isn't enough to decide that users can handle something. Users have lots of other things to handle and doing IT shouldn't just be within users' cranial capacity; it should be as easy as we can make it.

Don't provide a service that takes your users only a part of the way. Don't leave them floundering to go the rest of the way on their own. Change your infrastructure to accommodate your users.

Be user-centric. Do what's best for your users, not your systems. Make your priorities the same as your users. Consider how a user will use a system, not the "right" way to use it or the way you would use it.

Don't expand a bad service. Fix it first. Don't make it easier for your users to tolerate a bad situation. (And don't fix it by just documenting it.)

Talk to users in terms they understand. Talk means written talk and on-line talk too.

Don't lie to your users. Not even white lies. Truth (in fact and in spirit) in advertising is essential. Don't promise what you can't deliver.

Help your users get off the IT Auto Train. Start offering stellar service. The benefits will be enormous and university-wide. Opportunities lost by not employing appropriate information technology will be saved. New efficiencies will be discovered. Disgruntled users who have given up on projects vital to the university will be reenergized and those projects will move forward. Create an IT department that takes people where they really want to go. ■

"While education is the great equalizer, technology appears to be a new engine of inequality. Access to technology is not only about hardware and software. It is about effective use, teacher training, and careful integration of technology into the curriculum."

Lawrence Gladieux and Watson Scott Swail
"Who Will Have Access to the Virtual University?"
AAHE Bulletin
October 1999

In Future Issues

- *Successfully combining reengineering with new system implementation*
- *What, if anything, IT has to do with institutional quality*
- *Is your president one of the ones who "gets" it?*

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EDUTECH RESPONDS

Q. **We are about to select a new administrative information system, which will probably lead to some changes in how we do things on campus. There are a few people in key positions at our institution who are well-meaning but don't see the need for new systems and new ways. Should we put them on the selection team? We are afraid they will bring their outmoded viewpoints with them, and the new system will turn out to be just a reconstruction of the old one.**

A. *Without the full cooperation of all the key people, the new system won't achieve what you're hoping for. Before setting out on your software selection process, spend some time building up your team. If some strategically placed administrators are dubious about the project, sit down with them and learn why. Their worries may be based on the failings that software packages exhibited a decade ago. If so, get them to articulate their concerns, and then promise them that the products under review will be examined very carefully to see if they bear out these fears. Taking an active part in the selection process will be doubly important for these people—it will serve as an opportunity to bring their knowledge of systems up-to-date. Also, some managers may be worried that their department will come out of the selection process at a disadvantage. Show these people that their role is to help the institution make a good decision that will affect its overall well-being for years to come, not to protect the interests of a single department. It's worth building consensus right from the beginning; you will need it later to make the system implementation a success.*

Q. **We feel that we should develop a technology plan to guide our institution's major purchases over the next five to ten years. What should be in the plan?**

A. *It is natural to want to pick the winners and stick with them. However, if you invest heavily in a particular technology, expecting it to fulfill your needs for many years, you may find yourself shackled as newer technologies evolve and as practices in higher education become ever more sophisticated. No institution has money to throw away, but it is important to form realistic expectations of the life of technology investments. It is better to err on the short side and be pleasantly surprised. Over a long period, sound financial planning for technology should allow for continual cycles of reinvestment and replacement, guided by the institution's evolving needs and goals.*

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EDUTECH REPORT

The Education Technology Newsletter for Faculty and Administrators

Avoiding Problems in Implementing AIS Software

by Joel M. Smith, Mira Costa College

The article entitled "Delays, Bugs, and Cost Overruns Plague PeopleSoft's Services" in the September 24th edition of *The Chronicle of Higher Education* reported on the frustrations that administrators at a number of institutions have experienced, and are continuing to experience, in implementing a new generation of administrative software from PeopleSoft. Some, but not all, of the difficulties reported in the article have been encountered by those of us in the California community-college system who are now implementing not only PeopleSoft but also other such software.

As the article noted, a number of structural features of that class of software can lead to cost overruns and dissatisfaction with the results of its implementation. These features include the complexity of the software, the difficulty of deciding about initial configuration options, the dangers of choosing to customize the software, and the realities of coping with bug fixes and updates to the software. However, the article did not give details about how to avoid the problems it described.

Even worse, without more information, the article might lead an administrator new to dealing with this class of software to the incorrect conclusion that he or she must simply choose the right software—i.e., something other than PeopleSoft—to avoid the problems described. That conclusion would be unfair to PeopleSoft, a company that has worked closely with higher education in recent years to produce high-quality, innovative products for our administrative purposes.

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"While on-line *courses* offered by traditional institutions raise a number of questions about the equivalence and quality of offerings, and about faculty responsibility for the curriculum, totally on-line *institutions* raise questions about the meaning and preservation of higher education itself. Such institutions raise the specter of a higher-education system that is nothing more than a collection of marketable commodities—a system that could turn out to be all but unrecognizable to the scholarly communities that invent and reinvent higher education on a daily basis."

J. Perley and D. M. Tanguay
"Accrediting On-Line Institutions Diminishes Higher Education"
Chronicle of Higher Education
October 29, 1999

NEWSBRIEFS

NEW NLII FELLOWSHIP

The EDUCAUSE National Learning Infrastructure Initiative (NLII) has begun a new fellowship program aimed at institutional transformation in higher education. The year-2000 pilot program, which begins on January 1 and ends on December 31, will consist of two half-time fellowships targeted at teaching and learning support staff. According to EDUCAUSE, "NLII Fellows will study, analyze, and assess specific aspects of institutional transformation of relevance to the NLII and identify transition issues for implementation in the Teaching and Learning Bridges program. The primary benefit to participants will be a broadening of perspective, leading to enhanced career opportunities." While NLII Fellows will work to promote the overall goals of the NLII, their activities will be focused in three specific areas: they will serve as facilitators and producers of the work products resulting from the newly formed NLII Regional Focus Sessions; they will serve as liaisons to and facilitators of the work of the NLII Readiness Criteria Working Group; and they will serve as liaisons to and facilitators of the NLII Teaching and Learning Bridges Program.

Detailed information about these three programs and the fellowships can be found at: http://www.educause.edu/nlii/fellowship/.

IMS ANNOUNCES RELEASE OF ENTERPRISE SPECIFICATION

IMS, a global consortium of more than 200 educational institutions, commercial entities, and government agencies, has just released version 1 of the IMS Enterprise Specification. IMS develops and promotes standards that define an open architecture for networked learning systems, supporting education and training worldwide. This new specification is designed to enable interoperability between learning management systems and administrative systems, such as human resource and student information systems. Geoff Collier, manager of learning technology product strategy from PeopleSoft, and Wayne Veres, director of systems development at California State University-San Marcos, led the working group that produced the IMS Enterprise Specification.

The specification is targeted to everyone involved in the development and delivery of Internet-based education and training, including learners and teachers, as well as IT organizations and providers of learning services and products to schools, colleges and universities, and corporate and government training departments. IMS is a global consortium with members around the world and centers currently in the United Kingdom, Australia, Singapore, and Catalonia providing input and requirements; the IMS specifications, therefore, are designed to meet the needs of individuals and organizations across broad geographic and cultural areas.

The consortium develops technical specifications to support distributed learning and is supported through membership fees from a growing coalition that currently includes 36 Investor members and over 200 Developers Network members. For further information, see http://www.imsproject.org.

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Presidents: One Month and Counting

by E. Michael Staman

It is just about one month until the turn of the century. Regardless of whether you have been preparing for Y2K for years, or you have done nothing at all (*especially* if you have done nothing at all), here is a list of ten tasks, in priority order (items 1 and 2 are both priority one), that you should consider right now. A lot of progress, especially with contingency planning, can still be accomplished, even at this late date.

1. Communications. Communications. Communications. Create an incident response team and a communications strategy. The team should have on it decision makers empowered to act quickly and the best "get it done now" staff members available. Include legal counsel because some decisions may have legal implications. Be certain to include key public relations individuals. Think about rumor control, both as good institutional policy and important for the health and safety of the community: "The rumor that a lab freezer has failed and that we have released a severe virus into the atmosphere last evening is not true."

2. Life, health, and safety. Make sure that no one gets hurt. In facilities, for example, confirm that fire and other safety alarms work, that hazardous materials will be protected (do not forget research agendas), and make contingency plans in case they do not. Plan for a building "sweep," perhaps initially by security and others as appropriate, to occur as a first event in 2000—building by building, room by room, laboratory by laboratory.

3. Operational foundations. Personnel, fiscal resources, and technology are the keys to any activity. Check on legal, union, and human resources policies to ensure that you have the power to mobilize individuals on an emergency basis. Ensure that you have adequate access to financial resources to make emergency purchases and to employ people. Your institution depends on its network, databases, computers, applications, electronic interfaces, and access to financial resources; either an internal or an external failure may disrupt the availability of any of these. If you have not had enough time to adequately prepare these areas, good contingency planning and rehearsal will be essential.

4. Ongoing operations. Understand the core activities that must work properly to ensure business continuity, including registration, payroll, financial aid, accounting, and human resources systems. Not all of these will have the same urgency, so first create contingency plans for those that are the most complex, have the highest potential negative impact, and could fail the soonest.

5. Internal awareness. Your Y2K project does not end a few minutes after midnight on January 1, 2000. It is an ongoing activity which will need to extend for weeks and even months into the next year. Client/server issues may surface on January 1; weekend financial processing on January 7; 50 PCs in a laboratory during the opening of classes the week of January 10; month-end processing on January 31. During the month of December it will be wise to discuss with both faculty and staff what could happen and what to do about it.

6. Become more informed. There is a vast repository of excellent material at www.educause.edu. This site includes, for example, over 50 links to institutions that have published Websites of their own on Y2K, their preparations, and in some cases their contingency planning.

7. Back up everything. Prepare to back up everything that exists in machine-readable form; at the very least, consider the items that you developed in response to #3 and #4, above. Insure that your backups work and test the restore process for critical applications.

8. Consider a "Follow the Sun" activity. A number of sites have set up mechanisms to monitor Y2K reports as they occur around the world, possibly providing important lead time for a critical problem. www.gadwall.com/y2k/event/ is one; www.davislogic.com/watch.htm is another.

9. Test all of the above plans and strategies. Use the resulting discussion with your faculty and staff to think about and possibly provide advice on your contingency planning. Do some simulations: tabletop discussions, dry runs, a walkthru of facilities, and power-down and power-up procedures.

10. Back up files and confirm staffing. Perform a full backup on December 30, and a second full backup on separate media on December 31. Confirm that staff who are supposed to be on call will be available, and staff who are supposed to be on site will be there. ■

E. Michael Staman is currently the vice chancellor and CIO for the University System of Georgia. On January 1, he will assume the Peyton Anderson Chair in Information Technology at Macon State College. This article, written with the assistance of Ed Priestaf and Reed Davis, appeared originally on the EDUCAUSE Website, www.educause.edu.

The Continuing Challenge of Int

Latest Survey Results Fro

Assisting faculty efforts to "integrate information technology into instruction" remains the single most important information technology (IT) issue confronting American colleges and universities over the next two to three years, according to new data from the Campus Computing Project. Fully two-fifths (39.2 percent) of the more than 550 two- and four-year colleges and universities participating in the 1999 Campus Computing Survey identify "instructional integration" as their single most significant IT challenge, up from 33.2 percent in 1998 and 29.6 percent in Fall 1997.

"Providing adequate user support" ranks second again this year: just over one-fourth (28.2 percent) of the survey respondents identified user support as the most significant challenge for their institutions, up from 26.5 percent in 1998 and 25.0 percent in 1997. Placing third was "financing the replacement of aging hardware and software," identified by one-seventh of the survey respondents (14.3 percent) as the single most important IT challenge for their institution.

"The survey data document the growing campus awareness that the key IT challenges in higher education involve people, not products," says Kenneth C. Green, founder/director of The Campus Computing Project and a visiting scholar at The Center for Educational Studies of Claremont Graduate University in Claremont, CA. "Two decades after the first desktop computers arrived on college campuses, we have come to recognize that the campus community's major technology challenges involve human factors—assisting students and faculty to make more effective use of new technologies in ways that support teaching, learning, instruction, and scholarship." Green adds that for many institutions "user support and instructional integration are the flip side of the same coin"—complementary components of the broad challenge that involves the effective use of new technologies in teaching, learning, and scholarship.

One Web-based service that appears late arriving in higher education is electronic commerce: only 7.6 percent of the institutions participating in the 1999 Campus Computing Survey report e-commerce capacity via their campus Websites, up slightly from 1998.

Green observes that "despite some dire predictions on both sides of the issue, the real technology future of higher education is not about a winner-take-all competition between high touch and high tech. Rather, what's ahead for most faculty and most students is some kind of hybrid learning experience in which technology supplements, not supplants, both the content and the discourse that have been part of the traditional experience of going to college."

Staffing

Staffing concerns continue to compound the challenge of providing adequate user support. The 1999 Campus Computing Survey data reveal that user support levels in two- and four-year colleges and universities are well below those found in organizations and corporations of similar size and technological complexity.

For example, the widely accepted user support guidelines promoted by the Gartner Group, an IT industry research organization, generally recommend one IT support person for every 50-75 users. In contrast, the user support ratio at U.S. colleges and universities runs anywhere from some 150 student users to a single IT support person at private research universities to as much as an 800:1 ratio in community colleges.

The user support data highlight another key concern among survey respondents: training and retaining IT staff. These are two critical strategic issues across all sectors of higher education. Both issues receive ratings of 6.2 on a 7-point scale (1=not important; 7=very important).

Green reports "colleges find it increasingly difficult to recruit and retain IT staff, in part because campuses may pay 20 to 33 percent below the going rate for IT people in business and industry." He observes that "while the growth of the Internet economy has led some students to think about creating new businesses on the World Wide Web, it has also led many companies—both new and established, both large and small—to raid col-

This article is based on a news release prepared by Kenneth C. Green, director of the Campus Computing Survey.

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lege campuses for technology talent. Unfortunately, it is a competition that too many colleges are losing."

Y2K not a concern

Interestingly, Y2K appears as one issue that is not a cause for significant concern among campus IT officials. Less than one percent of the 1999 survey respondents identify Y2K as the "single most important IT issue confronting their institution," down from 4.3 percent in 1998. Concurrently, only 1.5 percent of the 1999 survey respondents "strongly agree" that Y2K issues "pose major problems for my institution," also down from 7.1 percent in 1998. Taken together, says Green, "the new survey data suggest that campus IT officials have used the past year to address Y2K issues. Moreover, the data imply that the campus IT officials have reasonable confidence in the Y2K compliance claims of their key software providers."

More IT resources

Not surprisingly, the 1999 survey data reveal that more college courses are using more technology resources. Over half (54.0 percent) of all college courses make use of electronic mail, up from 44.0 percent in 1998 and 20.1 percent in 1995. Similarly, the percentage of college courses using Web resources in the syllabus rose from 10.9 in 1995 and 33.1 percent in 1998 to 38.9 percent in 1999. More than one-fourth of all college courses (28.1 percent) have a Web page, compared to 22.5 percent in 1998 and 9.2 percent in 1996. Concurrently, the 1999 Campus Computing Survey data reveal that about one-fifth of college faculty (19 percent) maintain a personal Web page, one not linked to any specific class or course.

More Web-based services

This year's survey also reveals that more institutions are providing more services via the World Wide Web: more than two-thirds (69.5 percent) of the institutions in the 1999 survey provide online undergraduate applications on their Websites, up from 55.4 percent in 1998. Three-fourths (77.3 percent) make the course catalog available online, compared to 65.2 percent last year. Course reserves are available on the Web at one-fourth of the institutions, up from 17.9 percent in 1998. And almost half (46.5 percent) of the participants in the 1999 Campus Computing Survey report that their institution currently offers one or more full college courses online via the World Wide Web.

Staffing concerns continue to compound the challenge of providing adequate user support. Survey data reveal that user support levels in two- and four-year colleges and universities are well below those found in organizations and corporations of similar size and technological complexity.

However, one Web-based service that appears late arriving in higher education is electronic commerce: only 7.6 percent of the institutions participating in the 1999 Campus Computing Survey report e-commerce capacity via their campus Websites, up slightly from 5.1 percent in 1998. Concurrently, only 3.9 percent of colleges and universities report that they have created a strategic plan for electronic commerce.

"Growing numbers of students, faculty, and consumers now routinely purchase books, music, clothing, and other goods and services via the Internet. Yet the 1999 survey data confirm that compared to other sectors of the economy, colleges have been slow to develop a capacity for electronic commerce," states Green. "At the end of the day, e-commerce in higher education involves more than permitting prospective students to pay application fees or assisting alumni to order logo attire on the campus Websites. Rather, e-commerce involves a wide range of content, product, and service issues that ultimately benefit all who participate as members of the higher education community."

The annual Campus Computing Survey, now in its tenth year, is based on data provided by campus officials, typically the senior technology officer, at 557 two- and four-year public and private colleges and universities across the United States. Participating institutions completed the survey during the summer and fall of 1999.

Green can be reached by e-mail at cgreen@campuscomputing.net. Copies of the 1999 Campus Computing Report will be available on December 15 for $35 (postpaid) from Kenneth Green, c/o Campus Computing, PO Box 261242; Encino, California 91426-1424. For more information on the survey, see www.campuscomputing.net. ■

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Avoiding Problems in Implementing AIS Software...

continued from page 1

More importantly, the notion that there is a product from any vendor that will work right out of the box with few dangers of cost overruns or of dissatisfaction with the results is simply mistaken. Administrators who reach that conclusion will make bad decisions for their institutions. Many of the dangers described in the article are inherent in the nature of this genre of software. Installing a complex administrative-software system that is sufficient to meet the needs of a modern college or university requires more-sophisticated knowledge and tactical decisions from us than have been required of college administrators in the past.

While it would be nice if we could depend on software vendors to educate us about the prerequisites and ramifications of choosing, implementing, maintaining, and using their products, we cannot. Salespeople say what we want to hear. For example, they often emphasize the very features of the systems—e.g., ease of customizing the products to the potential buyer's current business practices—that will lead to serious problems down the road. They know we want to hear that we really don't have to change our ways to use their software.

Nor can we depend on the consulting firms that make their living implementing administrative software to give us the complete story about deploying the systems. After all, by far the biggest cost in any such implementation is often the exorbitant fees we pay consulting firms to help us set up and customize the software. Although they can be valuable partners, their interests do not always coincide with ours.

Ultimately, we have to depend on ourselves to know as much as we can about the strengths and weaknesses of the software we are considering.

There are a number of good software systems, including PeopleSoft, that institutions can purchase. The problem is that it is all too easy to implement any of them using strategies that will lead to both short- and long-term problems. To prevent the problems, administrators need to understand the complexity of the systems, the dangers of customization, and the critical nature of documentation.

> *When software implementations go bad, the temptation is to blame the software. Some faults do indeed lie there, but many others lie in our administrative decisions. We expect complex software systems to work right out of the box.*

First, the software packages are complex systems. Changes made to computer code or data-base structure in one part of the system can affect other parts. That is both good and bad news. It makes fixing some problems easy. One community college solved performance problems throughout its PeopleSoft system by making fairly simple changes in the programming commands that put data in and retrieved data from the underlying Oracle database. But changing code to fix one part of the system can produce problems in another part.

Knowledge of that aspect of large-scale software should result in some concrete administrative strategies. Changes to the software must be made serially, be heavily documented, and be tested carefully for unexpected consequences. If the staff of a consulting firm or the institution's own information technology staff is allowed to operate in any other way—e.g., to make many changes at the same time, or to fail to document changes carefully—unexpected problems and cost overruns are likely to occur.

Second, implementation decisions must be made with future maintenance in mind. Failure to understand that fact is the most serious mistake administrators can make in implementing such software. For example, PeopleSoft allows the customer to customize its software or to create new applications to use alongside those that the company has developed.

However, customizing a commercial application creates significant difficulties when the vendor releases a new version. That version might contain new features that conflict with the changes you have made, or that remove structures you have depended on in your customization of the product. If you have customized the software, your information technology staff will have to spend a great deal of time evaluating the relationships between your customizations and the vendor's changes before you can proceed with any upgrade. The more changes you make,

Joel M. Smith is dean of academic information services at Mira Costa College. This article is based on a letter written originally to The Chronicle of Higher Education.

the more time it will take to go through the process every time you upgrade your software.

Even though PeopleSoft provides sophisticated tools to help with the process of comparing your software with the new version, upgrades of extensively customized systems can take months. That is true for all of PeopleSoft's competitors, too. If you don't have enough computing staff members to perform the upgrades, you will have to pay for high-priced consulting help.

Here again, knowledge of the details should lead to concrete strategies. You should change your business practices to match your software, instead of customizing the product. That is going to be uncomfortable for many staff members, but not as uncomfortable as not being able to upgrade or patch the software because you don't have the resources to update a customized product.

Any good software will include ways to tailor it to your needs that don't involve customization. For example, with PeopleSoft, you can write your own self-contained subsystems that don't cause the difficulties described above at upgrade time. In any system, you can use the report-writing tools to create custom reports that extract just the information you need without customizing the software.

Third, documentation of set-up decisions and changes is critical to a successful implementation. That may sound obvious, but the reality is that neither consultants nor information technology staff members like documenting, so it seldom gets done well, if at all. Poorly documenting the implementation of a complex administrative software system leaves the institution at the mercy of information technology staff members, who are notoriously difficult to retain these days. Even worse, failing to create clear, usable, comprehensive documentation means that the software cannot be upgraded without figuring out how it was set up in the first place—which takes time and money.

When software implementations go bad, the temptation is to blame the software. Some faults do indeed lie there, but many others lie in our administrative decisions. We expect complex software systems to work right out of the box. We fail to arm ourselves with an understanding of the details of the systems we have chosen. We train our staffs insufficiently or incorrectly. We choose the comfort of customizing software to the way we've always done things over the difficulties of using the basic, easily upgradable product. We let staff members get away with poor documentation. We turn too many tasks over to consultants, so that our staff members are lost when the consultants leave.

The technological sophistication required to implement administrative software is greater than that to which academic administrators are accustomed. But no piece of shrink-wrapped software alone can provide the functionality we need to serve students who live in the information age. We have to develop the more-complex strategies required to implement and manage the tools of this age. ■

"No real dichotomy exists anymore between the technology of administration and university administrative processes *per se*. What we used to call student services—admission, registrar, financial aid, student accounting—have in fact become manifestations of information management."

T. Hochstettler, B. McFarland, A. Martin, and J. Watters
"Simultaneous Process Reengineering and System Replacement at Rice University"
CAUSE/EFFECT
Volume 22, Number 3, 1999

In Future Issues

- *Successfully combining reengineering with new system implementation*
- *What, if anything, IT has to do with institutional quality*
- *Is your president one of the ones who "gets" it?*

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EDUTECH RESPONDS

Q. You have written many times in this column on the need for wide participation from the campus community in decisions and priority-setting around information technology. As the director of computer services, I agree with this approach, but find many of my users are reluctant to get involved. They believe that it is my job to make these decisions, and feel that placing the "burden" on them to do it is unwarranted.

A. *There can be many reasons for this, ranging from not wanting to disrupt an environment that is working well and delivering what it should to not wanting to become immersed, and possibly take responsibility for, a highly troubled IT environment. Also, some folks often think that they do not have the background or expertise to participate well. All of this is understandable, but not wise. There needs to be a general recognition that IT is a strategic resource of the institution, and that involvement in decision-making and priority-setting is not about the technology per se; it is about what the technology can do for the school. Abdicating responsibility in this area is like letting a travel agent determine where you're going to go, rather than the more appropriate role of advising on how to get there. In the long run, the benefits to the institution will be greater if it is institutional goals and objectives that determine technology directions, rather than the other way around.*

Q. We're looking for a new administrative system, and it seems to us that some of the systems out there are "Cadillacs"—which we certainly don't need—and some are "Chevrolets." Can you help us classify each of the available systems as one or the other?

A. *Not really—it's an inappropriate analogy. There are no systems out there today that we would characterize as "luxurious" in the sense that a Cadillac is; no systems that are loaded with fancy options and frills that are unnecessary or frivolous. Yes, some systems cost more than others, but this is almost always because the system has a depth and breadth of features that make it easier to use and more productive. The single most important thing that has changed about campus information systems in recent years is that they are expected to be usable by a wide variety of people, regardless of the users' technical backgrounds or experience. The inherent complexity that results from this demand adds to the cost of the system, but does not make its features a luxury.*

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Should We Customize The New AIS?

by Thomas Warger, Five Colleges

Recent articles in *The Chronicle of Higher Education* have looked at the woes of administrative information system (AIS) installations and in doing so, have broken new journalistic ground in naming names and reporting confessions of error. Many institutions now realize they misjudged the degree of risk associated with being first-wave adopters, which is not at all to say that they chose the "wrong" vendor. Useful though these discussions have been, they have barely touched one of the most difficult and sensitive topics in the conversion from an existing AIS to its successor: software customization.

What's wrong with customization? It is expensive. It disrupts and dilutes the quality of work that goes into what is already a difficult process of installing a new system. It adds greatly to the overall cost of ownership for new software by imposing additional support overhead—requiring special attention whenever the baseline software is upgraded. It weakens the partnership with the vendor who also incurs greater future costs for ensuring compatibility of customizations with future baseline enhancements. It provides cover for our reluctance to manage our administrative units closely and challenge poor management among our peers—customization is a way to carry forward idiosyncratic or just plain arbitrary practices. **Axiom: customization should be kept to a strict minimum and then managed aggressively.**

Most colleges and universities changing software now are replacing systems they have used since they first adopted computer-based information management. Some of these systems have been

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"Let us not forget about the professors who have worked for millennia to improve teaching methods. Let us also not forget that this new medium will require a new set of teaching skills. Finally, let us never forget the importance of a good teacher. Online courses are simply a different method of delivering content; they still need a quality instructor in order to facilitate student learning."

Parker Hudnut
"Teaching Online: The Emerging Core Competency"
@cademyonline
12/4/99

NEWSBRIEFS

INTERNATIONAL JOURNAL OF EDUCATIONAL TECHNOLOGY

The International Journal of Educational Technology (IJET) is a new refereed journal in the field of educational technology, sponsored by faculty, staff, and students at The Graduate School of Education at the University of Western Australia and the College of Education at the University of Illinois at Urbana-Champaign. IJET is published online twice each year and is available without an access charge. The journal is available at www.outreach.uiuc.edu/ijet/.

Articles in the first issue include: "Technology in Education: Who, Where, When, What, & Why?"; "Can Computer-Based Testing Achieve Quality and Efficiency in Assessment?"; "Opportunities and Options for Web-Enabled Databases: Comparing and Choosing the Right Software for Virtual Courses and Communities." IJET welcomes contributions from scholars, practitioners, policymakers, and researchers in the area of computer-based educational technologies. Authors may submit research articles or book and software reviews. The subject matter should be concerned with theory and/or practice within the area of computer-based educational technologies. E-mail articles to ijet@lists.ed.uiuc.edu.

For more information, contact the editors: Roger G. Hacker, Senior Lecturer in Education, The Graduate School of Education, University of Western Australia, http://www.ecel.uwa.edu.au/~rhacker/; and James Levin, Professor, Department of Educational Psychology, College of Education, University of Illinois, Urbana-Champaign, http://www.ed.uiuc.edu/People/Jim-Levin/.

ICLT 2000: DOES TECHNOLOGY MAKE A DIFFERENCE?

Technology is one of many factors in an educational setting, and there is no single definition of "effective use" of technology when it is used by different groups in different ways. How can educators and policymakers gauge the effectiveness of expensive and ever-changing technology investments? ICLT 2000, the International Conference on Learning with Technology, synthesizes groundbreaking research, best practices, and policy experiences into a new framework of understanding about educational technology. The conference, co-sponsored by the Commonwealth of Pennsylvania and the Global Learning Consortium, is aimed at educators, researchers, and policymakers from around the world. It features invited and competitive papers and panels, keynote speakers, and roundtable discussions offered in a collegial atmosphere.

ICLT 2000 will be held at the Tuttleman Learning Center at Temple University in Philadelphia on March 8–10. For more information, see www.temple.edu/iclt.

ONLINE TUTORING: ANYTIME, ANY PLACE

A company called Smarthinking has announced plans to provide 24-hour online tutorial help to students taking certain mathematics and writing courses at several colleges. The service will cost around $30 per student per semester, and other subjects will be added. A free pilot program will begin in January. For more information, see www.smarthinking.com.

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Deja Vu in the Online World

by Robert Heterick

Yogi Berra, that master of malapropisms, is reputed to include among his language-mangling utterances, "It's deja vu all over again." Whatever its damage to the English (or French) language, it seems most appropriate to describe our current quandary regarding how to deal with teaching/learning and the online world.

It was just 20 years ago that most institutions began to break away from the propensity to develop and maintain local systems for library automation. A number of commercial efforts had begun to emerge that offered nearly all (sometimes more than) the functionality of the local system. The advantages were mostly on the cost side—the outsourcing company spread the development and maintenance costs over a larger client base and was able to offer similar functionality at less cost. It took a surprisingly long time to break down the "not invented here" mentality, but ultimately the cost savings won out. There are fewer than the fingers-on-one-hand locally developed library systems still in existence, and most of those have been turned into business ventures.

About ten years ago, similar question about local efforts to provide institutional administrative support systems began to arise. The question wasn't whether institutions could write and maintain such systems but rather whether or not it was cost effective to do so. Exacerbating the situation was a multi-year programming backlog and the emergence of the Net. After all, the question went, just how different are the financial systems at institution X from those at institution Y? Wouldn't it make sense to outsource the development and maintenance of such systems, leaving the local data processing staff to worry about a small number of local modifications? That way, development and maintenance costs could be defrayed over a large number of institutions, all using the same basic platform for financial reporting, or student registration, or human resources. This presented a tougher choice than the library example as institutional administrative systems were (and still are) considerably more idiosyncratic than the more mature, more standardized, library applications.

It seems safe to say that this issue has been decided as it was in the library. Cost considerations have won out over concerns for local peculiarities. Somewhat different from the library example is that for many large institutions, the up-front cost of moving to outsource is in the tens of millions of dollars.

The locus of the argument has shifted from libraries, to administrative systems, and now to the core function of the institution—teaching and learning. The arguments are basically the same, cost vs. local idiosyncrasies. The cast of characters has, however, changed dramatically. Instead of a small community of librarians, or a still small, but somewhat larger, group of administrators, it now encompasses the entire faculty. For the greater institutional community it is no longer a back-office issue, but one that strikes at the heart of the institution. (There isn't anything like the MARC record to provide an underlying standard as there was in the library, and the idiosyncrasies of teaching are personal rather than institutional. To make matters even more difficult, most of the outsourcing contenders have been in the business for barely a few years with products that are sometimes more promise than real.)

We can expect to hear the same arguments. The products in the market aren't able to handle this or that situation; to use them would require that we change (slightly or significantly) the way we do "business"; they can't possibly be as good as the "systems" we already have in place; we can develop whatever we need in-house cheaper, or better, or faster. Such points of view will cause the supply side to grow much faster than the demand side for several years. And, just as the administrative systems solutions were an order of magnitude more expensive than the library solutions, these solutions will ultimately be an order of magnitude more expensive again.

In the long run we will make the same choice that we did in the cases of libraries and administrative systems. Long-term cost savings to the institution (and the consequent saving to the tuition payer) will win out over local idiosyncrasies of the faculty. Just as with the case for administrative systems, teaching/learning systems with the capability of local personalization will carry the field.

It is deja vu . . . all over again. Only in this case it will appear to happen in slow motion, driven primarily by the perception of dwindling market share and competitive disadvantage, not by the cost savings. ■

Bob Heterick is former President and CEO of EDUCOM and Vice President Emeritus at Virginia Polytechnic Institute and State University. This article was written originally for Learning MarketSpace, a publication of The Leadership Forum at the Center for Academic Transformation.

Should We Customize The New AIS?...

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in place for twenty years or more, which more or less corresponds to the "living memory" of the institution. Looking back on the frustrations, embarrassments, and cost overruns from the troubled installation projects, it is interesting to wonder what part of the problems can be attributed to the surprisingly complicated and ambivalent ties we have to those old systems. Many administrators and staff have known no other computer systems. Almost all would be hard-pressed to distinguish between those elements of administrative practice that determined the characteristics of the existing software and where the software determined the practices. It is easy to surmise that if we were just now going from paper-based processes to the current generation of computer-based systems we would have an easier time of it. So, how much of the difficulty comes from undue influence of the superseded systems on their replacements? Or, from a human perspective: how much of the hurt is self-inflicted?

Mandatory or elective?

To be sure, when something like a "fit and gap" analysis takes place the new software will lack some small number of genuinely essential functions. Putting aside for the moment the more problematic calls and the many places in which the new is just different, the question is why did those gaps not get identified in the RFP? Did they not turn up in checks with peer institutions who have adopted that software? How can major mis-matches emerge after purchase if the RFP was properly focused and the vendor responses accurate? Nevertheless, they do occur, and even if the RFP was reasonably well done it seems there is still a lot of room for misunderstanding or overlooking requirements.

Whatever the cause, these are the mandatory and unavoidable customizations. They must be the subject of high-level project management attention from the time they are discovered. They also need to prompt a reassessment of project timelines and costs. And, finally, they each need to be acknowledged and reported as they arise, because otherwise they tend to be used later as alibis for a very different order of problems.

In truth, replacement of an AIS is a unique kind of event in the life of a campus of any size or complexity. No other project crosses so many unit boundaries and has as much ramification.

Turning from those faults that would bring the life of the institution to a crashing halt if not remedied (and surely these are few), we come to the heart of the topic: elective customizations. Why is the number of requested customizations generally so high? Reasons range from foot-dragging by administrative units who are really not "on board" the project or are so weakly managed that their staffs' wish lists are not rigorously winnowed before being passed on to the project management to premature conclusions about what the new software actually does or—worse yet—misunderstanding of how old functions are in fact accomplished in new but different ways. All of these result from a sort of "inertia of rest": the future system needs to look like the old one because otherwise we would have to change the ways we work and think.

Even more flattering aspects of academic culture can serve to inflate the number of permitted customizations. For example, the degree of unit-level independence we like to think of as a kind of democratic management style leads us to defer too easily to colleagues' claims that their lists of changes are reasonable and worthy. In fact, we tolerate a live-and-let-live attitude by which we don't challenge each other's agendas. "Students, top administrators, and even some of the faculty come and go, but we staff are here for the long haul and so need to live together." How much hard work do we evade under the justification of that axiom?

In truth, replacement of an AIS is a unique kind of event in the life of a campus of any size or complexity. No other project crosses so many unit boundaries and has as much ramification. As a result, we are not experienced or prepared to cope with the scope of this task. The selection process, whether done well or (more often) poorly, leaves us exhausted and consequently over-eager to click past the project milestones that look so promising on paper and so urgent in light of the price we have finally accepted. Into this scene then comes the flow of customization requests. We have already made the speeches about

Thomas Warger is Assistant Coordinator for Information Systems at Five Colleges, Inc. in Amherst, Massachusetts and is a frequent contributor to this newsletter.

how these need to be kept to a minimum and how the cost of the project is already higher than anyone foresaw, etc. But in reality we are too willing to trade away concessions on customization in the name of keeping peace with everyone. Those who report relatively smooth (more or less on-time, on-budget) installations invariably cite minimal customizations, both necessary and elective, as key to that success. Conversely, nearly every nightmare project has an out-of-control customization story lurking at some level of visibility.

And what of the role of consultants in the matter of customizations? It has been noted that because consulting firms increase their revenue when they perform the code customization they might be in a conflict of interests when they are also advising the client on the desirability of code changes. Be that as it may, there is a deeper problem here. Where an institution does not have its own management discipline to limit change requests, the outside parties (consultants and vendor) might conclude reasonably that the customer has passed along to them the chore of keeping the various administrative units happy and will ultimately tolerate cost overruns in order to meet that goal. Axiom: you cannot outsource successfully management tasks you will not face yourself.

There are at least five strategies for minimizing the need to customize and instead channel the interest in elective changes into more productive and reasonable avenues. They are discussed here in order of difficulty (and therefore also cost), from most to least.

Re-engineering. Here is a dilemma: software change is in itself an all-consuming chore, which makes a concurrent effort to re-think processes seem quite daunting, but—the other horn of the dilemma—we also know the other scenario that prompts re-engineering is a crisis of strategic dimensions. So, pro-active re-engineering is probably only going to happen in connection with software systems change if it is to happen in that mode at all. Instead of thinking, "we will look at those processes that the software forces us to re-examine" we might instead want to go into the AIS replacement thinking "everything is open to re-evaluation, and we need to factor into the project the time to carry out this process." Well, here we run up against what is already the biggest tactical mistake we make in AIS replacements: failure to see the need to add temporary staff so that those units engaged in the change-over get enough relief from routine chores to devote appropriate time and attention to bringing in the new system. They should also have the same buffer in order to re-examine their processes and their wider roles in the new AIS. Failing to create the time-release for rank-and-file staff is one of the most common contributors to unsatisfactory projects. A pool of temp workers to move from office to office as the installation unfolds would be a reasonable way to enable the time investment for re-engineering.

The mental model of "off-the-shelf" vs. "customized" is twenty years out of date. No system is ready to run in "off the shelf" mode; they all require tailoring to local needs before they are ready to run.

Tailor, rather than customize. All of the systems on the market incorporate extensive capability to define rules, populate tables, make choices, pre-configure functionality, and specify values and parameters that enable the software to conform to campus needs. The mental model of "off-the-shelf" vs. "customized" is twenty years out of date. No system is ready to run in "off the shelf" mode; they all require tailoring to local needs before they are ready to run. The tailoring issue is one of degree: whether to tailor aggressively during installation or (the other extreme) to set only the necessary choices, values, and parameters and take the defaults for most of the rest. While tailoring does not solve the case of a severe gap in functionality (and therefore the need for a customization), it is clearly wasteful to take the route of customization where some combination of tailoring adjustments would suffice. Tailoring, to be clear, does not involve re-writing the vendor's code; customizing does.

Postpone customization. Customization of code introduces delay in the project schedule, and it might be unavoidable if there is no acceptable work-around for the missing functionality. But if a code module can go into production mode without customization against a promise to reassess the need for custom changes after it has been in operation for a while (and the project as a whole has been able to progress), that would be an alternative to deferring implementation until after a pre-emptive customization.

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Teaching Online: The Emerging Core Competency

by Parker Hudnut, @cademyonline

For the past few thousand years, teachers around the world have been perfecting their skills at the podium. It has been said that if you were to take Socrates and place him in a city today, he would be confused by flying machines and electric lights; however, if you put him in a modern university classroom, he would understand. The traditional teaching methods of the past centuries have not fundamentally changed—until now. If you placed Socrates in front of a computer and told him to teach, he would certainly be dumbfounded. Without training, the transition to the online environment is daunting and difficult, much more so than it was even a few years ago.

When the online medium first became available to professors, some used it as an alternative way to provide information to students. But quite rapidly, people learned more about the phenomenon and were quick to add new components of their own. Online syllabi went up as did research projects, papers, and other reference materials so students could tap into these resources whenever they needed to. Eventually, people realized entire courses could be placed online. Whole lectures went up, as did homework assignments, projects, and supplemental materials. Suddenly, the entire class was online in plain view on the computer screen.

Where are we today? Unfortunately, many teachers and administrators now have a bad taste in their mouths about this. While some forays into the online environment were immediately successful, the majority of the first online classes are considered the immature younger siblings to place-based, on-the-ground classes. Luckily, the tide is changing.

Those who were not early adopters are now enjoying the learning curve without the pain of living through disgruntled students and high attrition rates commonly seen in early online courses. Institutions are now scrambling to go beyond text on a screen and to cater to students through the use of enhanced technologies and better delivery platforms. The goal is to open the door between the student and instructor in the online class. Students are demanding online content that gives them instant feedback, flexibility to study in the manner most conducive to their learning styles, and a sense of community in the online classroom.

However, this is only the first step toward an effective cyberclassroom. What is still missing? What has been forgotten?

Let us not forget about the professors who have worked for millennia to improve teaching methods. Let us also not forget that this new medium will require a new set of teaching skills. Finally, let us never forget the importance of a good teacher. Online courses are simply a different method of delivering content; they still need a quality instructor in order to facilitate student learning. For the same reason that textbooks have not removed the need for teachers, online course materials provide a wealth of information that needs direction and management. What teachers need is training on the use of this new teaching tool, and the most important item facing online instruction now and for the immediate future is the training of faculty.

Adequate training on both the pedagogy and the functionality of the online environment before the start of any course sets the professor up for success. Technological fears are removed and professors can concentrate on doing what they do best: teach. The first semester of the first online course is the most trying time for professors; with adequate training, the overall experience for both teachers and students is vastly improved. Training moves professors through the most difficult time and allows them to gain the experience of teaching without directly impacting students. With training complete, they are ready to teach.

The first semester is by far the most difficult. The second semester is easier and the third easier still. It is important to stress this continued improvement since many professors have tried online teaching and given up dissatisfied. These professors are usually the ones who never had the opportunity to train and experience the online classroom before the arrival of the first student.

From the limited but ever increasing data about the quality of online teaching, it is possible to see that better online teachers have lower rates of attrition and lower incidences of cheating and plagiarism. If instructors are fully engaged in the online class and students perceive the instructor's commitment to the class, the classroom experience improves to the point where students want to stay in the class and learn the material. In fact, some students may learn better than ever before. ■

Parker Hudnut is a contributing editor at @cademyonline, which is copublished by University Access and AACSB - The International Association for Management Education; see www.academyonline.com.

Should We Customize The New AIS?...

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While this option is not always possible, where it can be implemented it has two major benefits: the project is less disrupted overall and the administrative unit has the opportunity to know their module of software more thoroughly before returning to the customization question. If the decision is to customize, surely it is now made on better information and experience. If it proves unnecessary, so much the better.

Create subsystems. Commercial AIS packages are actually whole system environments in which the same tools the vendor used to write the applications suite can be used by the customer to write extra, independent, free-standing, or auxiliary functional units. An alternative to some customizations is to develop additional code that remains independent of the base code and will not interfere with the vendor's subsequent upgrades and enhancements. But, like customizations, these additional code units will need to maintained and upgraded as the base package evolves. No commercial system is going to meet every locally specialized need in any event but will have to communicate (exchange data) with an increasing number of other systems (e.g., passing "patron" information to the library OPAC). From this need to use the new AIS's tool set to interface with other programs, it is a small step to thinking about supplementing the system's functionality by building new code units with "hooks" to connect back without intruding on the baseline code.

Train more extensively. If we compare administrative units who are most successful with the soon-to-be replaced system with others that have always struggled with it, one thing we will find is that the more fortunate have the ability to find work-arounds and alternative methods within the existing functionality. They know their system modules better and have a can-do attitude towards it. It stands to reason that this approach and mind-set would be a good thing to encourage and support from the outset in the next AIS. A few extra training sessions are unlikely to make over an IS-challenged unit, but the change of AIS is a good point to draw a line after which the standard of system usage will be higher. The institution fails to get the best return on its investment in the new system if it leaves the standard of engagement and productivity to local option.

Good customer service ——— What was F.W. Woolworth thinking when he (reputedly) said, "Right or wrong, the customer is always right"? That is a serenely self-confident statement, implying "we have everything we anticipate might be asked of us and can concede the rest at no significant cost to ourselves." That slogan also pre-supposes an infinite number of small, individual, unrelated (i.e., "retail") interactions with customers—and it still works in that context. But if we lose sight of the very different realities of relations among constituents in a complex system, an open promise to accommodate unilateral demands is doomed to fail. In AIS systems, we are beginning to recognize that their (marvelous) complexity exposes us to management tests that are unprecedented in our experience. Still, the nub of the customization issue remains reasonably clear: good management in order to reduce customization to the truly necessary minimum and implementation of alternative strategies for the rest of the wish list. ■

"Conscious of paying 'extra' for computers, students are becoming increasingly sophisticated educational consumers. They expect heavy use of technology, but not for its own sake. When the 'old way' is better, they insist on using it. In short, students are teaching the faculty, through their responses, how to use technology effectively."

Ellen Earle Chaffee
"Finding the Will and the Way"
Preparing Your Campus For a Networked Future
1999

Best Wishes from all of us to all of you for happy and safe holidays and a joyous (and uneventful) start to the New Year!

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EDUTECH RESPONDS

Q. Our users are very resistant to the idea of taking on the additional responsibility that comes with a new administrative information system. The thought that they will do their own reports, for example, or build their own code tables or do all of the other things they will need to do makes them both uncomfortable and reluctant to embrace this new direction. They do not feel qualified, they do not feel they have the time, and most of all, they do not feel this should be their responsibility (implying that the computer services department will be shirking theirs). What should we do?

A. *It sounds as if the focus is on the costs and burdens associated with the new system, rather than on the benefits. Perhaps a more effective approach would be to have your users think of it this way: when traveling to a foreign city, you can always rely on the services of translators to make your way around, but the whole experience is much more powerful, rich, and enjoyable if you learn the language yourself. Even just beginning with a few words can enhance the visit immeasurably. Taking this a step further, a new AIS is really much more than just a visit to a foreign city; it is a permanent relocation to a new land. Depending long-term on translation services provided by language experts would be unthinkable, not to mention prohibitively expensive. To get the full value of a new AIS, users need to feel empowered to create the most independent and self-reliant computing environment they can. Of course, you also need to reassure them that they will get plenty of help in doing so.*

Q. We're struggling with the right way to do our Help Desk. We get a lot of criticism from the community and are looking for ways to improve. Any suggestions?

A. *Looking at commercial models can be useful. A recent experience with a technical question for a software vendor: the interaction is done through an online chat session with a live person. Once the request is made, you are put on hold for a short time (during which time you can go away and do other things), then you are notified that someone is ready to handle your request. While chatting in this manner, other resources can be offered, such as "pushing" a Web page at you that goes into additional detail about the solution or that can serve as a reference if the problem arises again. Very interactive, very responsive.*

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Just Say No

Howard Strauss, Princeton University

At the IT Faculty Support Group's weekly staff meeting, the group's manager describes a request from the faculty for a new service. "What do you think?" she asks.

"Oh no! Just what we need; one more new service to provide. As if we weren't busy enough already!" "I don't see how we can handle that with our existing staff. Have you tried to hire programmers lately? Technical professionals are almost impossible to find and who can afford them?" "Is this something our group should do? We've never done this kind of thing before and it doesn't conform to our mission statement." "Do you know who asked for this? Professor Enark! He is just impossible to work with. Nothing we ever do makes him happy. And if we do this for him, we'll have to do it for everyone!" "You don't think we should take this on, do you? These things might look simple at first, but you know that once we commit and get started then, wow, we're in up to our eyeballs forever."

And so it usually goes. Our first impulse is to just say no. The best technical minds at this meeting do their best to find reasons to kill this new suggestion before it takes its first breath. The truth is, though, it is always very easy to say no. What's hard to do is to find some way to say yes despite the obstacles. How often can we just say no to our users before they all go away? Not as long as we seem to think.

Unless it is illegal, immoral, impossible, or detrimental to the university, our users, or ourselves, we ought to try to say yes. Our users don't ask for something unless they have some problem.

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"The fact is that the business of higher education is changing significantly, and technology has a large role in that shift. Distance education has not redefined what constitutes higher education. All types of institutions are engaged in this redefinition and in the dialogue on higher education quality, content, methodology, and rigor. Distance education has simply become a very visible home for new technological tools designed for a larger, more diverse student body."

Steven Crow
"Accreditation of Online Institutions"
The Technology Source
January/February
http://horizon.unc.edu/TS

NEWSBRIEFS

FLASHLIGHT WORKSHOP

The Flashlight Program of the TLT Group is pleased to announce a one-day Flashlight Evaluation Training Workshop on March 7, 2000 at Temple University in Philadelphia, Pennsylvania. The workshop will be conducted by Dr. Stephen Ehrmann, director of the Flashlight Program, and will be limited to a maximum of 35 participants. The Flashlight Workshop takes place on the day before the opening of the International Conference on Learning with Technology (ICLT 2000), the theme of which is, "Does Technology Make a Difference?" Participants in the Flashlight Evaluation Training Workshop will be introduced to the Flashlight method for evaluating the effectiveness of teaching and learning with technology. The workshop will help participants begin to design an evaluation of a course, series of courses, or program for an institution. The fee for the workshop, including materials, lunch, and refreshments, is $95.00.

For more information about the Flashlight Evaluation Training Workshop, and to register for this event, visit www.tltgroup.org. If you have questions about the workshop, contact the TLT Group at Flashlight@tltgroup.org.

EXCELLENCE IN LEADERSHIP AWARD

The 2000 EDUCAUSE Recognition Committee is inviting and encouraging submissions for nominations for this year's Excellence in Leadership Award competition. In a recent e-mail to the EDUCAUSE CIO listserv, committee member Dan Updegrove, the university director of information technology services at Yale University wrote, "Many of you have had the opportunity to work closely with the leaders in our field, and you have a particular appreciation for the contributions that these colleagues are making both on their own campuses and on the national scene. We ask you to identify the individual whose professional achievements, in your view, merit this high level of recognition by the EDUCAUSE community." The Excellence in Leadership Award recognizes extraordinary effectiveness, influence, statesmanship, and lifetime achievement within the field of higher education information technology management, on both individual campuses and the wider higher education community.

The deadline for submission of nominations is February 15. For more information, see http://www.educause.edu/awards/leadership/leadership-main.html.

MONOGRAPH FOR FACULTY

In a new monograph available from the League For Innovation in the Community College (www.leaguetlc.org), *Faculty Guide for Moving Teaching and Learning to the Web*, Judith Boettcher of the Corporation for Educational Research and Networking (CREN) and Rita-Marie Conrad of Florida State University provide faculty and administrators with a set of practical guidelines for implementing Web-based learning. Sections on Web technology, learning theory, and instructional design add historical and pedagogical elements, while stories told by faculty who have taught Web-based courses offer real insights into online learning.

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Just Say No...

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While it is essential that we determine what their problem really is before we dash off to solve it, once we determine the real need we should always try to fill it.

If you are one of those people from the meeting above I can already hear your first objections: "We have finite resources. We can't be all things to all people. If we said yes to every request that fell on our laps we'd never get anything done. You know, we don't have time to do everything that anyone asks." We say, "no, no, no." We never tire of maintaining the status quo. But IT is a service organization and needs to be a group that always says yes, unless it absolutely can't. Our justice system demands that a person is innocent until proven guilty, and we should take the same approach: our IT organization must insist that the answer to a user request is yes, until we can prove that a no is justified. Usually we do this the other way around.

Given that it is so much easier (and so much more fun) to destroy a suggestion than to implement it, how do we get a group to switch from no to yes? The answer of course lies in good leadership. The person presenting the idea should exercise good leadership skills by not just opening the floor for discussion, but by first making the case for implementing the idea and supporting it. It is quite different when your leader says, "Here's an idea. What do you think?" then when he or she says, "Here's a great idea that I think will do wonderful things for the university and will bring happiness to our faculty and staff. How do you think we should go about getting this done?" The important question is not, "what do you think?" or "should we do it?" It is, "how can we provide this service to our users?" Once we understand what that will take, we can look at the tradeoffs for doing it.

Getting to yes

Realistically, of course, there may be reasons not to do it. Although those reasons are easier to come up with than the reasons we should do it—and how we will actually get it done—we need to collect all the pros and cons about this suggestion. Write them all down with the name of the person who made the comment next to them. Do this on a flip chart or on a blackboard. Let everyone see those ideas and their owners during the discussion. Get the pros and cons discussed. Watch how much of the carping and negativism disappears when you write on the flip chart "Oh no! Just what we need; another new service to provide—Mary" and ask Mary if she means we should never provide another new service.

But although nothing makes it more obvious that something is silly than giving it lots of exposure, the most important reason to write things down is to keep the meeting focused and to give participants ownership of the solution. Ownership should be followed up with rewards for ideas that end up being used and appreciation for those that are not. Rewards can be as simple as public acknowledgment of a valuable contribution.

A real objection that is bound to be raised is that there is not enough time to take on the new thing given the load that is already being carried. Have you ever heard someone say something like, "I don't have time to look at your report today."? They don't really mean that they don't have time today. Everyone gets 24 hours of time each day. What they mean is that looking at your report is lower priority than the other things they are doing today. Don't allow objections based on resources to deter you from doing a project. Turn, "no, we don't have the time, or money, or people, or whatever" into a question of priorities. To do this new thing what would we have to give up doing? Is there anything of lower priority than this that we could give up to do it? This makes the answer yes, with an understanding of what it will cost to do it.

New ideas

At a design meeting for a new system, Tom, a member of the design team, suggests an unusual solution to a complex database problem.

"Tom, you always come up with the goofiest ideas. Can we get this meeting back on track? Don't interrupt unless you have something constructive to suggest." "We've never done things like that. It is so unnatural and unintuitive! That is not the Euphoric State way. Furthermore, I don't think it is even possible to do it your way." "The user will never sign off on this and it will take twice as long to do." "Our users don't need the new features you propose, Tom. Users have gotten along without something like that since computers were invented. They certainly don't need it now. It is just an unnecessary frill."

Although we know that every new idea starts out in a minority of one, it is a wonder that any make it past the people who just say no. How did we ever accept the telephone? Weren't there people who knew we had gotten along without it for centu-

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Howard Strauss is manager of advanced applications at Princeton University and is a frequent contributor to this publication.

Luring Faculty to Tech

by Mary Harrsch

"Build it and they will come" is the seductive promise that technology vendors whisper to education administrators as high-tech companies seek to garner a healthy share of the billions educational institutions will spend this year on hardware and software. But increasingly, administrators have discovered that simply offering the latest gadgets has not enticed faculty to integrate technology in their classes, enhance their course materials, or improve communication with their students.

Like any innovation, technology enhancements must offer tangible personal benefits before faculty will embrace new approaches to teaching and assessment strategies. Financial incentives at public institutions are often limited by budgets already strained by tax reform movements and general fund reallocations toward public safety and transportation systems. To change promotion and tenure processes would impact faculty employability at other institutions and would therefore require interinstitutional collaboration for effective implementation, a lengthy process. Given these constraints, what "personal benefits" can be offered to faculty? When technology solves existing problems, faculty appreciate its value. Institutions must examine the instructional goals and methods of their faculty and design programs to help them achieve their desired objectives more effectively with new technologies.

Mary Harrsch is the network and information systems manager in the College of Education at the University of Oregon. This article first appeared online at The Technology Source, http://horizon.unc.edu/TS, and is reprinted with permission.

At the University of Oregon, the Teaching Effectiveness Program (TEP) offers a variety of activities and advice through its Teaching with Technology outreach services. TEP sponsors two sessions of an Instructional Technology Summer Short Course for faculty in late June and August each year. This week-long course, offered at no charge to UO faculty, covers Web concepts, Web design, copyright issues, distance education, and an overview of campus resource centers. Stipends are offered as incentives to participate in the program. TEP also sponsors a similar 10-week course, "Technology Step By Step." Because it provides extensive one-on-one assistance, the course is limited to 12-13 faculty members. Only about 120 individuals have been able to take advantage of the program thus far, but faculty members have supplemented their classroom experience by requesting over 300 "house calls." TEP coordinators offer "house calls" to all faculty attempting to incorporate instructional technology into their teaching. They explain techniques to improve student-teacher communication, stimulate classroom discussions, gain valuable feedback using online assessment tools, and facilitate exam preparation. TEP coordinators also use practical examples to show faculty how to enrich classroom discussion. For example:

Like any innovation, technology enhancements must offer tangible personal benefits before faculty will embrace new approaches to teaching and assessment strategies.

Avoid the slow process of generating in-class discussion. Instead, require your students to send you brief responses to assigned readings via e-mail before class. Then use those responses to give your students a place to start the discussion. For example: "Melissa, you had an interesting reaction to the first article. Can you elaborate on that for everyone." Then "Jeremy, Melissa's argument seems counter to what you said. How would you respond to her view?" Instantly, debate is in motion, and you can continue drawing other students in from what they wrote in their e-mails.

This example addresses a problem most faculty already face in their classroom interactions with students. It also capitalizes on the fact that most faculty already use e-mail. In this way, it does not introduce new complexities but offers a method that uses existing technology to improve the learning process.

And what about faculty complaining about all that e-mail? TEP coordinators teach faculty how to use mail filters and archives to organize their correspondence and use e-mailed questions as a resource for their other students. They are provided with examples of successful course Web sites, classroom assessment techniques, and information instructors need about their students before incorporating online interaction.

If coursework requires particular software, the faculty member also needs to coordinate with the de-

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ology's Field of Dreams

iversity of Oregon

partmental technology support providers to be sure the software is available in student labs and develop a plan for providing (and funding) student software and project assistance. In a fiscally decentralized organization like ours, this can be quite a challenge. Student labs are usually funded by the organization's central administration budget, but course materials and graduate teaching assistants are usually funded by the individual program. A faculty member may receive funding authorization from the program to purchase course-related software but it must be installed on student lab computers supported by central technology resource managers. Furthermore, the lab computers may not have sufficient RAM, hard disk space, or operating system capabilities to accommodate the software. Student lab assistants are also frequently work-study students who may not have the necessary training to provide software-specific support to individual course participants, so a technology resource manager responsible for the equipment students will use must be included in the curriculum planning process.

If faculty members need training in any aspect of instructional technology, have questions about multimedia or Web publishing software or hardware, or need technical assistance in converting existing presentation materials to digital files for course Web sites, they are referred to the Faculty Instructional Technology Training Center (FITT), a new addition to Knight Library's Media Services. The center is staffed predominantly by fine arts majors screened for experience with multimedia and, most importantly, for excellent communication skills. It is much too early to claim success with the program, but in just the first few months of operation, the FITT Center served over 138 different faculty members from 40 different disciplines or programs.

The type of services requested and faculty demographics are recorded monthly to assess program effectiveness and plan program improvements. Faculty from the liberal arts including philosophy, history, and foreign languages as well as from the sciences such as mathematics, chemistry, and biology have sought assistance. To promote the FITT Center to its intended audience of faculty and graduate teaching fellows (GTFs), articles or notices ran in a variety of campus publications.

> *These activities provide the tools, support, and encouragement faculty need to deliver a quality educational experience in a society moving with the increasing speed of a microchip.*

Brochures were mailed directly to all faculty, included in the GTF orientation packets, and distributed at new faculty orientation presentations. A summary was included in a letter about IT news mailed to faculty at the start of Fall term and announcements were sent to several electronic campus mailing lists, including those for GTFs, the faculty consultants network, TEPtech, DeptComp (a mailing list for technology resource managers), and the FITT planning group.

Faculty reaction has been very positive: "Something like the FITT Center is the ideal missing link in the system," writes one faculty member. "Must have saved me hours of floundering on my own!" writes another.

The emphasis is on the FITT Center staff demonstrating techniques to faculty and assisting them with their projects rather than completing the technology tasks for them. To reinforce the skills training, the library also offers an extensive array of short technical workshops as part of its IT curriculum. These workshops, averaging about one and one-half hours in length, are open to faculty, staff, and students.

To encourage ongoing synergy in the development and application of technology-related skills, a Professional Partners Mentoring Program was developed two years ago. Although initially introduced as a development tool for staff, mentoring groups have evolved to include interested faculty as well. Groups meet for one hour once or twice each month, depending on the preferences of the group members. Group topics range from desktop publishing to advanced HTML. The groups are facilitated by faculty and staff volunteers who encourage group participants to share experiences and problems as well as new technology discoveries. Group discussion lists provide a communication channel to share information between monthly meetings. Together, these activities provide the tools, support, and encouragement faculty need in order to tackle the task of delivering a quality educational experience in a society evolving with the ever-increasing speed of a microchip. ■

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Just Say No...

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ries? Why would people want to talk into a box? It is just so unnatural and unintuitive!

While the leadership techniques in the previous case all apply here, beating down the naysayers in a technical discussion takes some extra effort. Don't let someone say something is not good without having him or her offer an alternative they believe is better. If A is not good and there is no alternative, then A is the best there is and you'll have to use it. As Winston Churchill pointed out, "Democracy is the worst form of government, save all other forms"; we'll always use the worse solution if there is none better.

We only keep doing things the same way for efficiency. New and innovative stuff takes longer to do and carries the risk of failure. If a group knows that failure is not an option, then no one will be willing to take risks and nothing innovative will ever get done. It needs to be understood in a technical meeting (and enforced and encouraged by the leader) that no idea is silly, no question is dumb, and that history, inertia, and unsubstantiated speculations are not good enough reasons to say no.

Write down and discuss every idea. Demand more than one approach to each problem. If you only have one approach to a problem how do you know it is the best and not the worst? With two approaches you can at least decide which of the two is better. Forcing at least two approaches will often make people think a different way about the problem. Once the problem is looked at in a different way and people feel freer about suggesting even their "craziest" ideas, then you'll be on the verge of seeing the really good solutions flow. Even "crazy" ideas have a way of spawning solid solutions.

It's not my job...

A user stops by the multimedia design laboratory to extract some digital images from a VHS videotape. While there, she asks for some pointers on searching the Web.

"We don't provide help on searching the web. We are a media design laboratory." "Try the help desk, ask your peers, or read *Web Searching for Dummies*, but we aren't the place that can help you."

Sometimes our mission statements and job descriptions make it seem that it is our duty to just say no. If we didn't, after all, we'd be breaking the rules. But there are often worse things than breaking the rules. Telling a user to go away is one of them; especially if it is an important user. And what user isn't important? Even a few burned users will give your group a bad reputation that will survive long after you've solved the problem. If we need to break some rules to say yes, we should at least consider doing so. Don't forget, however, that *we've never done that before*; and *that is not the way we do things here*; and *if I do it for you it will set a bad precedent* are not rules. They are excuses for not providing the best service we can.

Here are some rules for when it is probably ok to break the rules. But, of course, there are times to ignore these rules too. In the end, you'll just have to exercise good judgment, which no set of rules can supply you with under all circumstances.

If you are asked to do something that would help a user or colleague but breaks the rules, ask the following questions: Is it illegal, immoral, impossible, or detrimental to the university, our users, or us? Is this beyond my ability or my group's ability to do? Will it prevent us from meeting other obligations or commitments? If we don't do it, will the user be able to get it done quickly and easily some other way? Will it be expensive in time or money to do? Is there some obvious liability or danger in doing it? If your boss or your boss' boss asked you to justify what you had done, would you feel uncomfortable doing so?

If the answer to all these questions is no, then you should probably ignore the rules and provide the help. Don't forget that doing something is usually better than doing nothing. In the case above, if the user wanted days of instruction on searching the Web, which might have been impossible due to other commitments from the media design lab, it might have been enough to spend 15 minutes teaching Web searching and then point the user to specific ways to learn more about the subject or to other people that can help. If there really are no good ways to get a user's problem solved, the IT organization needs to address this shortcoming.

Good news, bad news

At a conference, Susan comments on how good some of the presentations are, while others, she says, are awful. "No presentation from my group would ever be less than wonderful," says Irene. "I have my staff listen to every presentation and critique them until they are outstanding."

"Off the record, Irene, I know many members of your staff," says Susan, "and they say the critiques just don't work. You have people critiquing the talks of their managers and they are afraid to say anything bad about them. That's why you always only hear such good things."

"No way. My staff isn't afraid of being open and honest," shoots back Irene. "This scheme really works. You should try it."

It is very difficult for anyone to give anyone else bad news. Most times people are too afraid or too nice to tell you. It may be even more difficult to deal with bad news when you are lucky enough to get it. But getting bad news is a rare and wonderful opportunity that allows us to improve things we might otherwise be blind to—unless we just say no and deny it.

What has your IT organization done to encourage users and colleagues to give you bad news? If you've done nothing, chances are you won't get it. Do you have a suggestion box that is really anonymous? Are there rewards for suggestions that improve the way things are done across the university? Do you encourage folks to report problems that they see, even when those problems are the responsibility of another group? Does your staff individually feel some pride and responsibility for all IT services offered at your university? Once you learn about a problem, do you ensure it gets the appropriate attention? Do you kill the messenger? Maybe even more important, does the messenger believe that he or she will be killed? Bad news does not mean you have bad people. All people make mistakes and everything we do can be improved.

Finding the truth

A university added a computer component to all of its creative writing courses. During and after the first semester this was tried, a questionnaire was sent out to all students asking them if they liked the addition. The results were very positive. Everyone welcomed the opportunity to "learn more about computing than I thought I would ever know" as one student replied. But someone in the IT group thought a group outside of IT should interview the students independently just to be sure there was no bias in the survey.

"No. Don't you trust us to do a simple questionnaire?" "What more could an outside group tell us than we already know? How could we be biased?" "We have already spent all the time and resources on this than we should. Let's extend this program to all other university courses." "We are the professionals who built this system and the results are wonderful. Why are you always so negative?"

Usually that would be the end of it. But in this case—taken from a real university—an outside group ran filmed focus groups of students who all agreed that they liked the computer component. But a common thread that was totally missed was that the students felt that: "The computer stuff was great, but it took almost a third of the time that I should have spent doing creative writing. I feel I really missed a lot of what this course was supposed to be so that I could learn about computers. How am I ever going to make up for the stuff I missed?"

There's a serious problem here that needs to be addressed, but it will never be seen it if we just say no. More often than we might be willing to admit, we need an outside opinion for what we are doing.

Just say no to no

These are just a few examples of how IT people sometimes say no. They say it because it so easy to say, but it is a great detriment to their users and to themselves. It stifles creativity, locks them in the past, and limits their vision to the end of their nose.

Your users expect a cutting edge IT group. Saying yes means figuring out how to do something new and innovative. That may be a prospect that causes butterflies in your stomach, but to grow and prosper you must learn to say yes. If the urge to say no remains irresistible, just say no to saying no. ■

"These business models and technologies are forcing the academy to confront unfamiliar questions. If students can work at their own pace and direction, what constitutes a course? When students can take a course anywhere in the world online, what happens to the idea of a campus? And how many elements of traditional campus life—social interaction, classroom dynamics, relationships between students and teachers—can be stripped away without wrecking learning?"

Yochi Dreazen
"Student, Teach Thyself"
The Wall Street Journal
January 1, 2000

EDUTECH RESPONDS

Q. In formulating budgets for IT, many of our administrators, including our financial vice president, are thinking in terms of "buy once and for all." They tend to fund IT projects, and even the infrastructure, in peaks and valleys (some of those valleys can last for years). I know from my own experience that this isn't right, but how can I get the correct message across?

A. *By emphasizing that the buy-once strategy just doesn't make good economic sense. You need to buy what you need now and make the overall design expandable and flexible enough so that you can add as more need arises and as your needs change. But the institution has to accept the fact that some present investment will just have to be discarded in the not-too-distant future; that is the very nature of technology, at least for the moment. This is true whether your resources are large or small. In each case, investment must be continuous and earlier investments must be seen as having a relatively short life expectation. If your financial resources are small, you can accommodate that by making small initial investments, followed by small but continuous reinvestments. The point is to determine what steady stream of capital funds is available and attainable (such as the income from a technology endowment, for example), and then live within those means.*

Q. Along those same lines, our administration also tends to be very risk-averse and wants every technology decision to be the right one.

A. *Don't we all! The truth is, however, you simply can't avoid risk in technology decisions. The challenge is to manage the risk in a way that makes sense for your institution. The future will be different from the present. It is not an appropriate goal to make technology decisions that will not require revision, to buy equipment that will be guaranteed not to become outdated within a certain number of years, to anticipate which technologies now in competition will become dominant. These are not appropriate goals of any reasonable IT planning process. The planning process should set goals at a higher, educational level, and then provide the means to reach those goals no matter what the future brings. The institution needs to learn how to allow for future change, continued investment, continued need for further hard decisions, and so on. Not easy, but vitally important.*

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Web Portals: A Home Page Doth Not A Portal Make

Howard Strauss, Princeton University

What will replace the web? It may be hard to imagine that anything will replace the web, but nothing lasts forever. However, so far nothing has replaced the web because it has managed to reinvent itself several times and is about to do it again, this time with web portals.

In its original incarnation, the web was an online tool for sharing scientific work that included text and images. This read-only version of the web was soon replaced by a more interactive version that offered simple services, and then later, advanced web-based services, generally within the context of a university or company home page. While this was a major advance for the web, the focus of a home page was still the entity, the person, company, institution, or organization, offering it. Every person viewing a particular home page saw exactly the same thing, the entity's view of itself.

What's a portal?

A portal is a fundamental departure from the old entity-centric nature of the web to a user-centric web experience. Portals represent a basic change in the way we present web information to users and the way in which users use the web. Unfortunately, the word "portal" is commonly being used to refer to a variety of web sites that include simple home pages with the word "portal" on them, horizontal portals such as Netcenter or Excite, and a few vertical portals that are the type that will have the most impact for colleges, universities, and corporations.

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"Technology ... does not teach; the techniques we adopt simply enable the delivery of teaching, and simultaneously shift the responsibility of learning away from the teacher to the learner.... While we are entering the era where multimedia and hypermedia are bringing together under one umbrella the essence of print, audio, and video signals, computer-assisted instruction, conference and group learning, at the heart of the teaching and learning transaction will be institutions and teachers. Our challenge is to create pedagogies of learning within which modes of delivery will contribute to effective learning."

G. Dhanarajan
"Technologies: A Window for Transforming Higher Education"
TechKnowLogia
January/February
http://www.TechKnowLogia.org

NEWSBRIEFS

D-LIB TEST SUITE

The D-LIB Test suite is a group of digital library testbeds that are made available over the Internet for research in digital libraries, information management, collaboration, visualization, and related disciplines. The Test Suite lowers the barriers to entry for new researchers, provides standard sets of data for quantitative and comparative research, and is a platform for experiments in interoperability and distributed systems.

Testbeds include Infomedia Digital Video and Spoken Language Document Testbed, Carnegie Mellon University; Networked Computer Science Technical Reference Library, Cornell University; UC Berkeley Environmental Digital Library, University of California, Berkeley; Alexandria Digital Library, University of California, Santa Barbara; and DeLIver: Desktop link to Engineering Resources, University of Illinois at Urbana Champaign.

For more information, see dlib.org/test-suite/overview.html.

ERIC/HE CRITICAL ISSUES BIBLIOGRAPHIES

The ERIC Clearinghouse on Higher Education (ERIC/HE) recently completed the quarterly update of all its Critical Issues Bibliographies (CrIB) Sheets. Each CrIB Sheet is a brief ERIC bibliography on a topic of interest in the field of education. Issues covered include: assessment, distance education, collaborative learning, technology in higher education, and technology in the classroom.

All the CrIB Sheets are available at www.eriche.org/Library/index.html#cribs.

ACUTA SPRING SEMINARS

ACUTA has announced its Spring Seminars, to be held April 9-12, 2000 at the Wyndham Resort, Miami Beach, Florida. Track I will be on "Wireless and Other Emerging Technologies" and Track II will be on "Leading the Technology Organization."

For more information, see www.acuta.org/events/seminars/sabt3.cfm.

SEMINARS ON ACADEMIC COMPUTING

Known as "Snowmass," the Seminars on Academic Computing is one of the oldest and most recommended annual meetings. For 30 years, they have created an intellectually stimulating framework for exchanging information, goals, solutions, and problems about computing, communications, information resources, and information technology services through a three-part program: the Directors' Seminar, the University Executives Seminar, and the practicum in IT Leadership.

The 1999 session's theme is "Strategy, Technology, Organization, Relationships, and Mission" (STORM!), to be held at Snowmass Village, Colorado, August 6-11. For more information, see www.educause.edu.

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Web Portals...

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At this year's Detroit Auto Show, Ford's CEO Jacques Nasser said, "We will do nothing short of transforming our cars and trucks into a portal for the Internet." Cars cannot be a web portal. They might access a portal, but Mr. Nasser is using "portal" to mean any place where you can access the web. Peter Granoff of wine.com says that they will become *the* wine portal. I suppose Mr. Granoff means that everything you'll want to do with wine will be at wine.com and it will remember your preferences. That's at least somewhat portal-like. CampusPipeline.com wants to build the student web portal for your university, and dozens of companies, including IBM (Enterprise Information Portal) and Oracle (Enterprise Portal) offer portal products. Almost any software company who doesn't offer one now, will do so in the next two years.

Definitions

People have defined portals as gateways, as hubs from which users can locate all of the web content they commonly use, as personal web pocket guides, and as homepages that can be personalized. All of these have some truth to them.

The Gartner Group defines four levels of portals that cover the entire landscape, from level 1, Internet Entry Point portals which are just gussied up home pages, to level 4, Market Place Integration portals which include supply chain management and other features.

Horizontal portals

Portals can be classified as horizontal portals or vertical portals. Horizontal portals are often called mega portals or HEPs (Horizontal Enterprise Portals) and are like the web portals offered by Yahoo, AltaVista, MSN, Excite, and others. These web sites attempt to provide on a single web page all the services any user might need. All of them include shopping, weather, stock prices, news, search engines, chat groups, horoscopes, and so forth, and all urge you to make their page the first page you see when you use the web. They allow you to personalize the page you see by selecting the cities for which you'd like the weather, choosing the stocks and news sources you'd like to display, altering the appearance of the web page, and much more.

Some HEPs let you do extensive personalization, allowing you to build multiple stock portfolios and see frequently updated valuations. Typically, but not always, the personalization is held in web cookies that are stored on your local computer. Accessing a HEP from another computer loses all of your personalization. HEPs almost always include advertising and their goal is to attract as many eyeballs as possible.

HEPs are very useful web sites, but they don't give academic or corporate employees access to everything they really need on the web. Much of what an employee of any kind needs on the web is specific to the place they work and their role in that organization. Employees need calendars that include university holidays and events, access to financial reports, the status of the tasks they are working on, organization charts, benefits information, and much more. Depending upon their role, different people need quite different information. Students, for example, need to see their course and exam schedules, the books they've borrowed from the library, their grades and GPA, their financial aid status, information about their extracurricular activities, and much more. Prospective students, their parents, the parents of enrolled students, alumni, faculty, scholars from other institutions, and vendors to the university all have very different needs for web information from the same organization. Horizontal portals have no way of offering that kind of organization-specific information because they are not connected to any organization's data sources except their own. Only your own organization or organizations can really deliver access to all the web information you need, and even then, much of the information you need will be outside your university.

Vertical portals

A portal that delivers organization-specific information in a user-centric way is called a vertical portal or vertical enterprise portal (VEP). A VEP can also deliver all the information a HEP delivers. While a HEP looks the same to all who first enter it, a VEP looks quite different. How does a VEP know it needs to look different for you than for someone else? Unlike a HEP, a VEP requires authentication for access. When a user logs on to a VEP, it produces a customized page, tailored to the user who logged on. It knows a great deal about the user who logged on because the user is a member of the organization that produced the VEP. It knows, for example, what cohort a user belongs to (e.g., student, faculty, staff), what role a user plays (e.g., help desk manager, department chair, lacrosse team member), what projects a user is involved with, how many vacation days a user has taken this year, and much more.

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Howard Strauss is manager of advanced applications at Princeton University and is a frequent contributor to this publication.

Signs of Spring on

It is nearly spring and time to look for some hopeful signs springing up in the landscape that has been desolated by the on-going crisis in IT support. Relief is surely long overdue and seems to be coming from a number or sources.

Finally there is reason to hope that the fight to take staff training in IT skills will no longer be the lonely slog that it has been until now. How long have we heard, "You already pay them so much, they should know their stuff—and we shouldn't have to spend thousands more each year to train them." Or, "When we put out good money to train your staff, they leave three months later for a job out in the commercial world."

Investing in staff knowledge

But Human Resources departments are beginning to acknowledge that a continuing investment in the development of skills of existing employees across all departments on campus will be increasingly important to the effectiveness of our institutions. While we might complain that they could not see the logic of this argument until the need had become universal on campus, still the recognition is both welcome and highly valuable.

How did this change come about? In part, it can be traced to the reversal of management thinking about the workforce that has recently surfaced in the Ford Motor Company's decision to provide computers and network connectivity for all its employees, regardless of job description. While we are not likely to see the same step taken in the academic world, there, too, the view is changing in the direction of belief that learning and work are no longer separable activities. Automated processes have transformed many physical plant jobs into technical positions and even brought a whole new and higher level of skill requirements in campus post offices. OSHA requires, with the force of law, that housekeepers be taught and kept informed about the chemicals they use. These are all tokens of the pressure to recognize the knowledge dimension of all jobs.

Y2K committees may have had the unanticipated effect of finally driving home to many department managers how much their staff depend on computers. From there it was a short step to realizing that training those staff is important, too.

Another important turning point was the advent of campus Y2K task forces. These came about once the IS shops realized that perhaps computers outside the dinosaur pens might have the two-digit affliction —and they did not want to be responsible for every departmental minicomputer, all the micros, the HVAC controllers, the elevators, and anything with a processor chip in it. Those concerns proved to be exaggerated, but they did have the salutary effect of bringing the Y2K committees into existence, and those became "computing awareness" organs. This was probably the first time in the history of computing that "ownership" of an IT issue was shared with everyone, even if nobody actually planned it that way. Its afterlife has been that a lot of managers took notice of how dependent on computers their staffs had become.

Another new insight has resulted from the exorbitant cost of new, integrated administrative computing packages. On some campuses there is a new emphasis on training IT staff and general office staff to take advantage of the increasing power of desktop computing software suites. In essence, they are trying to realize important productivity gains by making fuller use of the spreadsheets and databases that so few staff used, despite the fact those tools have come thrown in with word processing software for several years now. Of course, these tool sets have also become very useful ways to work with data extracted from legacy systems and so seem to offer hope of a lower-cost alternative to expensive packaged systems.

As these changes were developing, many IT departments began to find themselves less able to offer anything resembling a good training curriculum for the very tools that were coming to be better appreciated. In large part, this inadequacy can be traced to the impact of the web on computer support operations. Even though that precipitous jump from fewer than 50% usage of computers to very close to 100% occurred six or seven years ago, those organizations have not yet recovered from its effects—most noticeably the chronic staff shortage relative to the increase in the customer base. Consequently, the burden of assuring adequate staff training in administrative offices is

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now more likely to be shared between initiatives spearheaded by Human Resources and IT. In many cases the new arrangement makes increased use of commercial training companies.

Change in helpdesk and other aspects of direct support of computer usage is also afoot. Libraries have stepped into the gap in many cases, developing more on-staff capability in technology support, more self-sufficiency for themselves, and more information technology topics in their training outreach.

Housing offices have in many cases taken up the slack (at least on larger campuses) in supporting networked computing in dormitories. Dorm room technology has asserted itself as a major quality-of-life issue for students, one that the housing authority often feels it cannot afford to leave to the central IT organization, given that they almost always needs to give priority to staff and faculty office computing, academic labs, and the campus inter-building network.

Physical Plant departments and architectural firms building or renovating buildings on campus have also become important new players in the IT support picture. Their contribution comes in the form of much more pro-active attention to the need to build a robust infrastructure and to recognize that telephones, data, video, HVAC controls, one-card networks, fire and intruder alarms–all are essential parts of modern buildings. Help from this quarter is timely, because shortage of network drops is still a significant brake on full integration of computing into academic and staff work in all but the newest or most freshly renovated buildings. Many buildings as new as twenty years old have an odd lot of outmoded and inactive jacks cluttering the walls and a shortage of 10 and 100 mb connection points.

Audio-visual departments, now often re-named "media services" have typically made at least modest progress in crossing the skill divide to support current technologies. For the most part, they have mastered satellite downlinks and "intelligent" classrooms. Their challenge now will be to support videoconferenced classrooms—a task that the IT departments are not enthusiastic about adopting.

There are encouraging signs that the burden of IT support is finding new allies, new shoulders to lighten the load that has all but imploded IT services. What can be done at this point to help things along?

On the academic side of the house, departmental computing facilities have in many cases evolved into support centers providing a wide range of service. This phenomenon has been a mixed blessing, as it has all too often developed in competition, if not outright hostility, with the central IT services. In many respects, these units are the only source of expertise for technologies of real importance for instructional support—Linux, Java, and multimedia authoring to name but three.

The dawning of a new season

These signs are encouraging, although hardly proof, yet, of a new season. So, what can be done at this point to help things along?

The most important steps are to recognize and nurture the trends. It stands to reason that if technology has become so indispensable the burden of supporting it needs to be shared around. That realization should in turn lead to a new approach to organizing resources, not necessarily by re-drawing departmental lines but certainly by starting high-level steering and coordinating committees to encourage and harmonize the new centers of interest and skill that are asserting themselves.

IT organizations need to get over their chip-on-the-shoulder attitude about who can be worthy to do some of those same tasks that they find impossible to cover—things such as monitoring and troubleshooting ethernet cards in far-flung dorms, teaching administrative assistants to make relational databases, and upgrading printer drivers.

Who is missing from this picture? Quite a few. Senior administrators need to quit hand-wringing about the service crisis and apply some muscle to getting their constituents to become part of the solution. More faculty might lead by example; great minds should make short work of installing a memory upgrade or an operating system update. We should all think of ways to invite the students to share their knack for coping with all of the above with such aplomb. ■

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Web Portals...

continued from page 3

This information that no HEP could possibly know can be used to customize a portal page so that even for a first approximation it contains all the web information a user would normally use. Naturally that would look quite different for different users, and of course, as with HEPs, the user can personalize the initial portal page.

Inside the vertical portal

A VEP requires customization and personalization accessible from any computer, advanced search, single sign on, links, and channels. Many more things can also be added to VEPs such as workflow and ERP (Enterprise Resource Planning) that are very desirable. In all likelihood any portal that is built will evolve, adding additional features and channels, as your organization better understands user needs and portal technology.

The portal software customizes the initial web portal page every time a user connects and is authenticated. It creates a portal page based on all the information it can obtain about a user. For example, while everyone who enters a university portal might find a calendar there, students should see exam schedules for their courses, while faculty might see exams schedules for all departments, and staff might see no exam schedules, but see university holidays. This initial customization must be kept on a server so that a user can enter a portal from any computer anywhere in the world and get access to his or her own information.

Personalize it...

A user can personalize a customized portal page. The personalization information needs to be kept on a server or other place where it can be accessed from any computer anywhere. Cookies are not an acceptable place to store this information for a VEP. More extensive customization and personalization makes for a better portal if the format of the portal and the personalization interface are done well.

Since a VEP should be *the* place for a user to obtain web information it must include an advanced search capability. The search should include the ability to search all of the web, only the web pages of the user's organization, the information on the actual portal page the user is viewing, or only information related to specific channels on the portal. The first two of these are pretty standard search capabilities and will be easy to implement. The last two will add a great deal to the effectiveness of the portal but will be more challenging to implement.

A vertical portal accesses many applications and different information sources both inside and outside a university. Many of these applications and information sources, like the portal itself, require authentication. A portal could require a user to authenticate to use each new application and data source, but that would make the use of a portal so cumbersome as to deter many users from using it. Since a user authenticates to a portal, the portal can determine which services within the organization a user is authorized to use and should be able to authenticate the users to those services as necessary. For services outside the university, the portal should also contain enough information to authenticate a user to those services as well. A user sees a single sign on to a portal, obtaining all the information accessible from the portal. While this is an essential feature of a VEP, it creates an environment that requires careful attention to security on the part of the portal builders. An abandoned computer with a logged-on portal, for example, would give anyone walking by access to everything that the owner of the computer could access.

Channels

While a portal is much more than a dynamic list of links, it will definitely contain many links. Most, if not all, of the links will be contained in channels. Channels are small window-like areas that contain specific information and/or applications, such as stocks, weather, benefits, search, calendars and so forth. A portal page consists largely of channels.

Often the channels are arranged newspaper style in columns, with several channels appearing in each column. When a portal first appears it subscribes a user to the most appropriate channels. A channel that is subscribed to appears on a portal page, though it may appear in a variety of sizes including iconified. The contents of a channel can be personalized and its size, appearance, and position within the portal page can also be personalized. In addition, a user can subscribe and unsubscribe to any channel he or she is authorized to access. Not all such channels will necessarily appear when the portal is first viewed.

Cameos

A channel gives a user access to specific information. One way to do that is with links, which channels do use, but filling a channel totally with links turns it into little more than a dynamic bookmark or favorites list. The goal of a portal is get the information a user needs at his or her fingertips.

Traversing hypertext links for commonly needed information makes for a poorly designed portal. A

channel needs to display the actual data or part of the actual application a user needs, not a link to it. Suppose a departmental manager needs to track very closely the amount of money left in her capital budget. She'd like the budget channel on her portal to display that amount, and other amounts she needs to track, right on the portal page. These tiny data windows within a channel, display small but important parts of critical data which I call Data (or Database) Cameos. A channel can also display Application Cameos. These are small but important parts of an application. An application Cameo enables a portal user to run a small bit of an application within a portal channel. This is how part of a searching portal channel might work. There would be no link to the search engine. Instead there would be a text box into which a user would type his search request. Depending upon the results, they might be displayed within the portal channel or on a new web page.

We need portals because the web is now being used to access all the information and applications we use via our computers. Our users need to do that much more efficiently and effectively than they can do it today. Even information such as voice mail, faxes, legacy applications, TV, radio, newspapers, journals, books, and other information sources which today are accessed in other ways, will soon be available via the web. To give all of our users the same home page will either not give them all the data and applications they need or will overwhelm them with all the data and applications everyone needs. The same home page also assumes that all of our users work the same way, which is obviously false.

How do we get started?

To get started you need to start at the beginning, which is planning, not building. Building or buying a portal will take an enormous amount of careful planning. Since it will be used by all people who access information and applications that your institution controls, and since a portal must be user-centric to be effective, you must include a wide cross-section of users even in your earliest planning. The two worst things you can do is to start implementation too early and to exclude potential developers and users from the planning process.

Building a portal will be an evolutionary task, but your planning should extend far beyond your first attempts at implementation. You'll need to work with users to determine their needs, both the information and applications they must have access to, and the customization and personalization they need. You'll need a high level commitment to do this and a good leader whose vision and commitment can make this happen.

A portal will change the way a university treats data and applications. Building it will require cooperation between every department related to the use and ownership of data and applications. Your web development group, if you are lucky enough to have one, will not be able to build this alone. A portal cuts across many IT groups. You'll need to have them all cooperate. A high level determination of the division of labor will help to avoid the turf wars that might otherwise result.

When you are well into your planning and determination of user needs you'll need to make a build or buy decision. If you build your own portal, should you use Java, XML, RSS, CGI, EJBs, or ESP? While your technical folks might push to make this decision and start coding ASAP, these are issues that can only be answered when you understand what you are really building.

Different again...

And what of your venerable home page? Corporations are replacing their internal homepages with portals. Ford Motor Company, for example, has replaced its supplier extranet (FSN – Ford Supplier Network) with a business portal. This portal might appear as a channel on a supplier provided portal. It will take some time, but home pages for large institutions are an endangered species. And they should be. We have the technology and the hardware to build user-centric portals. Once your users see what they can do, even the fanciest home page will never seem very useful anymore. The web is about to look very different. Again. ■

"The library of the future will be less a place where information is stored than an "information center" through which students and faculty gain access to the vast information resources of the world."

Deanna B. Marcum
"Bright Future for the Academic Library
Priorities
Number 13, Winter 2000

EDUTECH RESPONDS

Q. I have heard some human resources directors say they expect the shortage of IT workers to let up now that Y2K is behind us and all those programmers hired to fix the millennium bug are out of their jobs. Is there anything to that claim?

A. *Not likely, especially in the world of campus computing. One of the problems in the wake of the Y2K fizzle is that the crescendo of attention paid to the problem in the public press during 1999 left some erroneous impressions about how many people were hired to solve the glitch. While businesses and government agencies most at risk because of the age and size of their systems did augment their workforces to cope with the task, most medium and small information systems were checked and patched by regular staff, perhaps aided by consultants. Furthermore, much of that work was done before 1999 and was actually heading toward wrap-up just as the public became aware of the problem. Many campuses, for example, only formed Y2K task forces in late 1998 or even early 1999 even though there is staffs had been working on the central systems code for a while already. So the bulk-up in staffing was more the exception than the rule. In reality, many staff re-assigned from projects that languished while Y2K got front-burner attention are now getting back to them.*

Q. Is Linux something we should be looking at?

A. *In a word, yes. Although it still carries the earmarks of hackish cult status, it has been growing in importance and winning real respect. First, it goes a long way towards delivering the scalability of server architecture that had been elusive in the low end of the CPU range. Linux is reputed to be the fastest growing operating system for web servers and is even making substantial inroads among scientific workstations. Second, because it runs on just about any computer, it is literally more accessible to be learned by more people. (Unix, by contrast, needs to have its most useful features locked down and reserved for the sys manager on the time-share systems where most of us encounter it.) Third, Linux offers a greater measure of direct and effective control of processing resources at a time when the dominant operating systems aim to wrap and hide those fundamentals. Remember, Unix was long written off as a toy of the back-room geeks before it eclipsed VMS and even made serious inroads into IBM minicomputer operating systems.*

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The Education Technology Newsletter for Faculty and Administrators

Always Planning

The trouble with "strategic planning"—besides the fact that most people were not sure what the term actually meant—was that once one of these plans was finished nobody wanted anything to do with planning until memory of that ordeal faded away. Many an extensive planning process had the paradoxical effect of resulting in massive, ungainly plans that were soon left to gather dust on the shelf. If the 1980s were the golden age of strategic planning, the 90s were characterized by movement to a more reasonable and workable process model. Today, the most common approach to planning is to do it continuously; always planning turns out to be both more successful and more bearable than periodic, exhausting campaigns to produce blockbuster plan documents.

Planning for information technology is a more-or-less continuous process. As soon a plan is complete and in writing, it changes—both the technology and the needs of end users force this to happen. Planning is also a highly participative process and much better done by a representative committee than by a single individual, even one who is very knowledgeable about technology. By the same token, the committee should be a standing committee that develops, refines, and maintains a practice of planning that melds into the life of the institution. Extraordinary planning committees created just to produce the plan and then dissolve themselves are often more trouble than they are worth. They have a long learning curve, and then they tend to hand off a plan that they know they themselves will not be the ones to implement or revisit. Standing committees tend to produce a different kind of plan—one more gradual and realistic, more in synch with the normal rhythms of the college or university. Once the plan is on paper, the challenge will be to keep the momentum going and to keep the plan fresh and useful.

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"To me, the most interesting thing about the computer-writing revolution is the chance to see literacy changes in action: the processes through which we adapt the new technology to our communication needs (and the ways that technology forces us to modify our literacy practices); the ways we learn to trust electronic text (and the ways in which it perpetrates new verbal frauds); the emergence of new genres like e-mail and the World Wide Web page (and changes in old genres like the novel or the encyclopedia); and the ways we respond with optimism, frustration, and suspicion to this new and increasingly pervasive technology of the word."

Dennis Baron
Letter to the Editor
Chronicle of Higher Education
January 21, 2000

NEWSBRIEFS

CALL FOR SUBMISSIONS

You are invited to participate in the Third International Symposium on ETDs (Electronic Theses and Dissertations), March 16–18, 2000, at the University of South Florida. This symposium is organized by the NDLTD (Networked Digital Library of Theses and Dissertations), a consortium of research universities committed to improving graduate education by developing digital libraries of theses and dissertations. This conference will serve as a multidisciplinary forum for graduate deans and their staff, librarians, faculty leaders, and others who are interested in electronic theses and dissertations, digital libraries, and applying new media to scholarship. The symposium will balance plenary keynote speakers and panels, papers, tutorials, and concurrent discussion sessions, demonstrations, posters, and exhibits.

Call information and conference details are available at: http://etd.eng.usf.edu/conference.

MANAGING A CAMPUS ON A KEYBOARD

Virtual U, a sophisticated computer simulation of running a college, has been created by William F. Massey, a Stanford University professor of higher education, who modeled the game on the popular SimCity series. The game is schedule for release shortly.

See http://chronicle.com/weekly/v46/i18/18a05101.htm for an article about Virtual U, and visit http://www.virtual-u.org/ for a sample.

FUTURE OF HIGH-SPEED NETWORKS

The National Science Foundation's funding for the vBNS and Abilene networks runs out at the end of March, and observers are wondering whether the efforts by government and academia to build a next-generation Internet will succeed. Last year the University Corporation for Advanced Internet Development's Internet2 group started Abilene, with the intention of giving Internet2 members a means of testing applications in an environment more similar to the regular Internet, says Internet2's Greg Wood. The two networks have agreed to let organizations that link to both networks transmit data across the merged architecture and to give Abilene members access to vBNS resources.

Institutions that participate in Abilene and vBNS have noticed performance gains as a result of the networks, but acknowledge that the networks are underutilized and lack advanced applications. The networks have been used for applications including telemedicine, HDTV transmission, and remote control of telescopes and electron microscopes. Multicast technology also appears to be benefitting from vBNS and Abilene. Internet2 members are now working to develop middleware that links different databases and allows them to exchange information.

For more information, see http://www.internet2.edu/.

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Always Planning...

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The planning committee ——— Who should serve? First and most importantly, all who serve on this kind of committee must be very clear that they need to balance representing their areas with careful attention to the best interests of the institution. The committee cannot be composed solely of the champions of computing. Nor can it be populated with the loudest complainers. And it s membership need not represent every department, school, or other organizational unit merely for the sake of consistency—mindless formalism is one of the hobgoblins of committee makeup.

With those caveats in mind, the committee can be populated with fifteen to twenty people drawn from approximately these categories: senior administration, faculty, mid-level administrators, students, and the IT leadership. Others, such as consortium members or alums may be considered as well. The committee must not be packed with IT staff; nor is it necessary that the CIO chair the committee—that choice needs to reflect the local realities in leadership and skill to chair the committee.

The committee should also be constituted so as to be easily renewed by replacement members. The test of a good committee is whether it can go through changes and successions in membership without upheaval. Continuity over time and through changing issues is eventually one of the strong ancillary contributions to planning that this committee can provide.

Recommended process ——— A reasonable way to proceed would be the following: Every three years, go through a complete planning process: a compilation of IT needs of the whole institution, a strengths-and-weaknesses analysis, a prioritization by the committee of the most important items (usually the ones that will affect the most people) and an approval of the funding from the appropriate authorizing body. This is a formal process, with a deadline, a responsible party, and a written result. The basic ingredients for this plan should be:

The strategic needs of the institution Is the institution planning to add new educational or instructional programs? To enter a different competitive arena for students? To deliver its instruction in a different manner, such as through distance learning? To expand the physical facilities significantly? These strategies should always be the drivers for IT plans.

End-users' needs and objectives. Does the faculty need access to networked services in the classrooms? Will applications for admissions be coming in over the web? Are there web-development software tools the faculty are interested in using?

External technological trends. How should the rapidly improving price/performance ratio of desktop microcomputers affect how they are deployed and how frequently upgraded and replaced? Are the expanding resources of the Internet of value to the students? Should web-based information access be the standard for administrative computing?

The campus's technological situation and outlook. Is the IT staff keeping up with user demands? Will the network have sufficient capacity for anticipated uses? Is the information architecture up-to-date? Is the infrastructure robust, with little, if any, downtime?

Budget information. How much of the institution's resources is it reasonable to commit to IT over the next three years? Are there ways to use resources more wisely? Is it time to look at different budgetary strategies, such leasing instead of purchasing equipment?

Once this formal, three-year plan is in place, it should be revisited every year to make sure the remaining efforts are still in line with the original intentions. This phase of the process need not be as extensive as the effort that takes place every three years, but it should not be perfunctory either. While the off-year reviews are not a formal process, they too should have a deadline and a responsible party.

In both cases, the goal is to reach consensus among the committee members. Nothing undermines a plan faster than any hint that the committee could not come to genuine agreement. Consensus is not the same as unanimity; rather, it is a zone of common thinking within which differences can be respected.

And a plan is not plan if it is not public, accessible, and officially accepted. Good work can easily be wasted if any of these elements is missing after the committee does its work. Of course, committees are not able to control these factors, so they fall to the responsibility of senior administration. Posting the document on the web with a prefatory letter from the most senior administrator with responsibility for IT is an example of an easy method to "publish" the plan. Accessibility also has an intellectual dimension: the plan should be written so as to educate and inform the entire campus community—and this does not mean dumbing it down. Some extra care in explaining concepts and defining terms is what is needed. If the plan is good, it will be the measure against which all IT decisions can be evaluated. ■

Like its predecessor organizations, EDUCAUSE makes annual awards in several categories of IT practice. This article highlights the 1999 winners in the "Best Practices in Higher Education" and the "Medal" programs. Text set in italics is quoted from the EDUCAUSE web site, www.educause.edu.

EDUCAUSE Medal Awards —
This year is the last for this category, which has recognized individuals for solutions to IT challenges in higher education. Beginning with the fall of 2000, a new award for "Systemic Progress in Teaching and Learning" will take its place. Its object will be to recognize "replicable, scalable, and transformative programs and practices that have helped move institutions toward enterprise-wide instructional systems," shifting emphasis from the efforts of individuals to the achievements of programs. The 1999 Medal winners are all responsible for the development of exemplary technology-based instructional resources in different academic disciplines.

Phillip W. Barak
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Associate Professor, Department of Soil Science
University of Wisconsin

Dr. Phillip Barak is at the forefront of crafting and promoting multimedia educational tools in soil and related sciences. His course Website www.soils.wisc.edu/~barak/soilscience326/ contains both a standing Web page entitled "Essential Elements of Plant Growth" and class material consisting of course information, announcements, assignments, online readings, class notes, an e-mail connection that extends office hours, and links to related sites. Dr. Barak has also brought interactive 3-D chemical models with VRML (virtual reality modeling language) into the classroom as developer and co-author of "The Virtual Museum of Minerals and Molecules" (www.soil.s.wisc.edu/virtual_museum. Dr. Barak is associate professor of soil sciences at the University of Wisconsin.

Professor Barak's course web site is actually an impressive online model of the scholarly environment in which a scientist works. There is a periodic table, connected to an impressive depth of related information. Another link leads to an essay in the history of science, discussing the work and biography of Justus von Liebig. Throughout the pages are copious bibliographical notes and encyclopedic treatment of scientific terms related to plant nutrients.

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Randall J. Bass
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Associate Professor of English
Georgetown University

As director of Georgetown University's Center for Electronic Projects in American Culture Studies and associate professor of English, Dr. Randall J. Bass's thinking, teaching, and programmatic practices have made him a superb model and mentor for the use of information technology in the interdisciplinary American studies classroom. He is well known for his hypertext-based undergraduate instruction in teaching American literature within the larger framework of American studies, in which his methods require students to engage a range of primary source texts providing contexts for their study of the literature and history of a period. Dr. Bass was the founding project coordinator for the American Crossroads Project, a cooperative Web project that provides an electronic gathering place for American Studies teachers around the world.

The idea behind the Crossroads web site (www.georgetown.edu/crossroads/) is to provide an electronic focal point for the international community of American Studies scholars. It also has the goal of fostering awareness of electronic resources among American Studies faculty. Crossroads conducts workshops in electronic literacy and provides test sites for courses that have adopted new technologies and instructional methods.

Jack Dangermond
jdangermond@esri.com
President
Environmental Systems Research Institute (ESRI)

As founder, owner, and president of Environmental Systems Research Institute, Inc. (ESRI), Jack Dangermond's contributions to geographic information systems (GIS) education have helped to revolutionize the college teaching of geography. ESRI not only provides educational institutions with software at much reduced cost, but also offers, through a unique educational outreach program, the guidance and technical support needed to establish GIS instruction.

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Mr. Dangermond's most recent efforts focus on support for community colleges, which are generally least able to afford the costs associated with GIS training. ESRI has helped develop GIS courses at more than 250 two- year colleges, and an additional 200 schools are working with ESRI's full-time community college liaison to establish GIS courses in the near future.

Dangermond's work is also an effective solution to the vexing problem of how support faculty who want to get started in GIS. While the community of GIS users is largely self-supporting, the learning curve for beginners is steep. IT staff rarely have the expertise or luxury of time to provide substantial help. By reaching out directly to faculty, ESRI builds on the model of building self-sufficiency.

Dorothy H. Verkerk
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Assistant Professor of Art History
University of North Carolina

Dr. Dorothy H. Verkerk's Celtic Art and Cultures Web site addresses numerous pedagogical problems inherent in the teaching of Celtic Art, an art form that is not often covered by traditional art history and is often inaccessible to students.

These challenges are addressed by a searchable database of 1,000 images, a series of animated, interactive exercises that cover the basic principles of Celtic design, an interactive definition and audio pronunciation guide, and maps and a time line which orient students to the broad geographical areas and chronological spans covered by continental and insular Celtic cultures.

Online discussion forums and resource links provide additional contexts for student learning. The multidimensional, integrative, and interactive nature of Verkerk's Web site (www.unc.edu/courses/art111/celtic/) empowers students to become active in research, to integrate the materials, ideas, and insights they have gained, and to think at a conceptual level about both Celtic art and information technology. Dr. Verkerk is assistant professor of art history at the University of North Carolina at Chapel Hill.

This web site includes images, maps and time lines, and vocabulary look-up and quizzes. A section entitled "Topics" groups material into virtual museum exhibits and field trips. Under "Design," motifs figuring in the "Celtic visual vocabulary are presented. The "Celtic Art and Cultures" site is an exemplar of good design for an online collection of visual resources, extending the value of the project far beyond the courses immediately served by it.

Perhaps most impressively in an era of very costly administrative information projects, Cougar TRACS was implemented in three months and with no additional cash outlay.

With these awards, EDUCAUSE signals the end of an era in instructional software development, choosing to emphasize now projects with wide curricular impact The rapidly increasing cost and difficulty of writing multimedia instructional software compels this adjustment in perspective. While the design and vision for good software will likely still come from individuals in the future, the value of projects will be measured far beyond a single classroom or even a single campus.

Best Practices

Nineteen ninety-nine is also the last year for this category, which in the future will be known as "Exemplary Practices in Information Technology Solutions."

The winner and two runners up are campus-wide systems enhancing the ease of access to information previously delivered by other, less effective means. None of the three is itself a source of new or different information. Nor does any of them break new ground in a strictly technological way. Rather, they are all encouragingly visionary and efficient responses to urgent needs. In addition, they all draw on the skills and contributions of staff from different parts of the IT organization.

Cougar TRACS (TRAnsfer Credit System)
Washington State University
www.wsu.edu/transfer/TRACS

This system, developed to enhance the competitive recruitment position of the University, allows potential transfer students to calculate the credits that would transfer to WSU on a self-service, secure Web site.

Implemented in three months with no additional cash outlay, the system is based on two major components: an easy-to-use Web interface that can identify the prospective student and secure his or her personal and course information, and a server based on an existing degree audit engine.

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EDUCAUSE Awards...

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The program is particularly commendable for its appropriateness for institutional needs and priorities, the way it enhances customer service to students, and a particularly clever interconnection of simple technologies and use of existing staff expertise and software systems.

The Transfer Credit System is an IT solution to a strategic objective of the University: making it easier for students to transfer by helping them learn quickly how their earned credits would be evaluated upon admission. The approach involves a web interface to promote self-service access to data and use of the existing degree audit engine.

The Indiana University Knowledge Base–Computing Help 24 Hours, 7 Days a Week
kb.indiana.edu

This computing-use expert system uses technology to help support the increasing demand for technology support at Indiana University. The Knowledge Base (KB) draws from around 5,000 documents and answers over 40,000 questions each week, using a Web-based interface that allows questions in keyword or plain English forms. Deployed at all eight IU campuses, the system has become the primary tool for end-user support. It also serves as a resource to other higher education institutions , who can use the data base for information that is not specific to IU, and has been customized into "domains" established for departments and other service providers. The project is noteworthy for its effective aggregation of a wealth of information pieces, its ability to disseminate documentation, and the breaking down of help desk boundaries without increased staff resources. Although developed as an internal tool, it has already been emulated by several other universities.

The University of Indiana response to the pressure on their help desk succeeds in aligning and mutually reinforcing the efforts of IT staff, non-IT help providers, and end users, groups all too rarely working in harmony on most campuses. For years we have recognized that knowledge developed in the course of support work is often all but lost because of our inability to organize it and put it at the disposition of people only too glad to have it, if only they could. The Indiana University Knowledge Base applies artificial intelligence to open that data repository to everyone—using technology to support technology. It is now one of the leading computer support sources on the web and a model for other universities.

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The Next Generation Mass Electronic Messaging System
University of California, Irvine
www.abs.uci.edu/depts/mailrec/
www.ddm.uci.edu/zotmail/

The latest release of UC Irvine's e-mail message system uses the power of the Web to move internal communication to a new level of sophistication and simplicity. No longer a service provided by the Distribution and Document Management staff, the new system made the campus message system (ZotMail) part of a communication infrastructure through which messages can be sent to defined groups of employees 24 hours a day, seven days a week, from anywhere in the world-and recipients can control which messages they receive. The transmission authorization system is based on an organizational taxonomy, and recipients can see which area sent the message. Unsolicited messages have been virtually eliminated; more frequent and focused messages have improved campus communications; the decentralized subscription process has eased administration.

By a combination of technological innovations and a creative twist on rules-setting, Irvine has made remarkable progress on the very recalcitrant problem of enabling group mailings without unleashing a flood of unsolicited mail. By giving mail users the ability to customize mass mailing lists for their purposes fewer people receive unwanted, scatter-shot mail. And, undoubtedly, the technological enforcement of validation of the sender's identity helps deter callous or abusive uses of e-mail.

Summary

All of the winners in the Medal and Best Practices categories have found ways to solve multiple needs at the same time. They've used at least as many "old" technologies as new to do this. They've also put people at the center of their sense of appropriate systems and as a result produce multi-purpose, resilient information systems. The new standard of excellence is as likely to be about salvaging old systems and returning to solve old problems as breaking new ground. ■

Berners-Lee Receives Paul Evan Peters Award

Web pioneer Tim Berners-Lee will soon be honored as the first recipient of the Paul Evan Peters Award, which recognizes notable, lasting achievements in the use of networked communications to advance scholarship and intellectual productivity.

Presented by the Association of Research Libraries and EDUCAUSE, sponsoring organizations of the Coalition for Networked Information (CNI), the award honors the memory and accomplishments of Paul Evan Peters (1947- 1996), founding executive director of CNI. CNI, with some 200 institutional members, promotes the creation and use of networked information resources and services that advance scholarship and intellectual productivity.

Berners-Lee is widely recognized as the creator of the World Wide Web, which opened the Internet to the world. He is a uniquely appropriate choice as the first recipient of the award: in the course of more than a decade he developed a vision and a design for the Web and brought it to life, creating a capability that would revolutionize communication.

He designed the first version of the protocol for transmitting information on the Web (Hypertext Transfer Protocol, or HTTP), the first version of Hypertext Markup Language (HTML), devised the method for addressing documents on the Web (later known as Universal Resource Locators, or URLs), and developed the first Web server and the first Web browser, which was also an editor. His creation has changed the way people communicate and work together worldwide.

In his current role as director of the World Wide Web Consortium (W3C), Berners-Lee continues to encourage the development of open specifications to enhance the functionality of the Web as a mode of free expression and global communication. W3C, a non-profit, member-sponsored organization, is headquartered at MIT's Laboratory for Computer Science (LCS), at the National Institute for Research in Computer Science and Control (INRIA) in France, and Keio University in Japan. Berners-Lee serves as principal research scientist at MIT/LCS, which he joined in 1994.

Paul Evan Peters was a visionary and a coalition builder in higher education and scholarly communication, providing new insights and direction to the world of networked information for librarians, technologists, and publishers. He was named one of the 100 most important leaders in 20th century librarianship in the December 1999 issue of American Libraries magazine, published by the American Library Association.

The award program established in the memory of Peters is supported by an endowment from ARL, EDUCAUSE, Microsoft Corporation, and Xerox Corporation.

For more information about Paul Evan Peters and this award as well as its sponsoring organizations see http://www. educause. edu/ awards/ pep/pep.html. ■

Note: this article was based on a press release from EDUCAUSE.

"To: Hallie Blanchard, Technology Support Services, Northwestern University

The School of Music would like to establish an email account for an employee who believes email is A Can of Worms Better Left Unopened. Nonetheless, the Deans want him to have email because it would make all our lives much easier. We've got him talked into accepting email from the School of Music Deans only—well, from three out of four of them, anyway—with the understanding that someone else will take care of the paperwork. Would it be possible to: 1) Establish an account without getting him over to [the computer center]? 2) Set up an account so he cannot be looked up on the server, or under a different name so that his name will not appear? Once we have an account, I can set up filters so that he'll only get mail from people he wants, but I'm not sure we can get him to [the computer center] without chloroform, although he's small and I might be able to handle it. Thank you in advance for any help you can give me."

(As reprinted in *The Chronicle of Higher Education*, December 10, 1999.)

EDUTECH RESPONDS

Q. Has anyone come up with new ways to attack the perennial problem of recruiting and retaining IT staff?

A. There are some very interesting new developments. One approach is to launch a formal program for identifying staff already on the institution's payroll and who have both the interest and aptitude to make a career change. After some form of testing or screening, accepted candidates are put through a training curriculum on campus or with a commercial trainer. It is important that the training plan includes special attention to helping the new staff adjust to time management, customer service, and the continuous learning requirements of the high-tech field. Internal recruitment and training is also a golden opportunity to diversify the IT workforce— including more minority staff and enriching the mix of interests and experience brought to the job. Another approach is the incorporation of temporary staff into the IT workforce, whether consultants or staff hired on a project-duration basis, although this scenario poses some delicate issues about pay and benefits differential. Where in-house staff and outsourced workers need to work together special efforts are needed to smooth their co-existence.

Q. What does an instructional management system (IMS) provide that we don't already have with our web development tools and suites of servers?

A. An IMS is a way to address the impending problem that web sites and servers cannot expand indefinitely. The problem is not strictly technical; rather, it is a matter of organizing and making accessible the accumulation of materials that is the result of successful implementation of web-based information and instructional resources. Wouldn't it be nice for Philosophy faculty to be able to pool annotated bibliographies from several courses? And shouldn't that be easier to do than cutting and pasting from current pages on the web? And what about class rosters? Wouldn't it make more sense to have online discussion groups automatically set up for every course that wants one, by flowing the registrar's data into the utility that creates the online forums? While an IMS might appear at first an unwelcome layer of organization, in reality, without some means to lessen the labor entailed by moving materials to the web, this form of information is going to collapse under its own weight. An IMS is a way to help manage the task of tracking and delivering the explosion of web-based information we are creating.

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